Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 2.
WHOLE No. 863.

RICHMOND, VA., MAY, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

BANTI'S DISEASE: REPORT OF A CASE.*

By ALEXANDER G. BROWN, Jr., A. B., M. D., Richmond, Va.

Splenic anemia, primary splenomegaly with anemia, or Banti's disease, is a splenic disease with a rather recent clinical history. Grisenger in 1866, H. C. Wood, in 1871, and Banti in 1883, were the chief clinicians to describe this entity which we now call Splenic Anemia. Banti's name is more definitely associated with the disease because of his more extensive study and description of it.

Splenomegaly—Anatomically the spleen is greatly enlarged. The enlargement is uniform, smooth, and painless, except under bimanual pressure and manipulation. The size of the splenic mass resembles that of the leukemic forms of spleen reaching, it may be, to the navel, but is usually, freely movable. It is commonly agreed that the enlargement occurring in the spleen is one resulting from thrombophlebitis. This occurs as a result of a profound toxic agency or chronic infection which usually concomitantly produces a portal thrombophlebitis and portal cirrhosis. The association of Banti's disease and Laennec's (portal) cirrhosis is usual.

The Liver—Splenic anemia can not be considered alone. It is co-ordinate with portal thrombophlebitis and probably the same chronic infection which the detoxicating function of the liver is called upon to exercise, at the same time sets up inflammatory changes and clot-mass in the venous channels of both the liver and the spleen. To repeat, portal cirrhosis and Banti's disease are closely associated all through the literature, for it is believed that the toxic material entering the portal system over considerable time effects like changes of fibrosis and thrombophlebitis.

Anemia—The blood system is markedly affected. During the clinical evolution of the disease, long after the primary infection, patients show definite signs of anemia. Although the anemic phenomenon may assert itself in the likeness of an attack developing suddenly after a hemorrhage, usually a close observer notes the anemic condition gradually progressing; the insidious progress of the anemia may be so insignificant that it requires some outstanding symptom outside of the blood system, like dyspnea or swelling of ankles, to bring the patient to the physician. The blood picture in splenic anemia is one of leukopenia, 5,000 to 3,000 whites or less, with a red cell count of two million or less, depending upon the occurrence of hemorrhage.

Hemmorhage—Bleeding by haematemesis is a usual and spectacular symptom of Banti's disease. This may be the leading symptom directing attention to the malady. Hemorrhage in the patient, the subject of this report, was the first striking symptom and it occurred while the patient was traveling abroad, apparently in good health. The evidence of blood in the vomitus may be small, but careful observation of stools may disclose large amounts of blood, associated with increasing evidence of anemia.

Ascites—As Osler writes, ascites usually is a terminal event and is usually due to the enlargement of the spleen, and to a secondary cirrhosis of the liver associated with hydremia and anemia. In my case ascites began to develop in about three weeks after the first sign of hemorrhage. Ascites became an obtrusive and persistent symptom. The ascites developed to tremendous proportions and persisted from July, 1921 to May, 1922. There was at no time, however, general anasarca. The heart was displaced and dilated. There was no hydrops of pleurae or pericardium.

Case Report

Miss ———, white, female, age 55, unmarried. Patient's illness began April 30, 1921, while in Paris, continuing in Carlsbad from May 11 to July 13, 1921; arriving in Rich-

*Read by title at the fifty-fourth annual meeting of the Medical Society of Virginia, in Roanoke, October 16-19, 1923.

mond July 25, 1921, continued toward recovery until discharged, June, 1922.

The following facts were reported to me by her Carlsbad physicians covering the period, April 30th to July 13th: Patient became ill in Paris with what she thought was "acute indigestion;" this attack was characterized by nausea, vomiting, haematemesis, fever. Patient arrived in Carlsbad May 11th, with a temperature of 102° F.; pulse 116 per minute; marked anemia, coated tongue. Physical examination disclosed an enlarged heart with low systolic murmur along the base, a large round abdomen, distended with gas, but without evidence of tenderness or soreness, without evidence of tumor or mass, although the liver and spleen appeared enlarged. There was no ascites or anarsaca.

The stools were frequent and were black; the urine was scanty and highly colored, showing a trace of albumin, a distinct trace of sugar, an increase of indican, some urobilin, some hyalin cylinders, but no blood.

By May 15th, the stools were free of blood; distended veins on abdominal wall appeared to be improved, the abdomen was smaller and the liver and spleen less enlarged, although not normal. Throughout this period there was a daily fever and the diagnosis was suggestive of typhoid fever.

On June 17th, about seven weeks after the initial attack and a fortnight after the febrile period, at a time when the patient was thought to be convalescing, physical examination disclosed an increasing ascites and a large palpable tumor over the left hypochondrium. From this time the patient's condition grew steadily worse; abdominal dropsy grew greater, dyspnea appeared, cardiac embarrassment increased.

On July 14th, the patient was met by me in Paris, she having been brought over from Carlsbad in a special car. Inspection revealed the evidence of dyspnea, the excessive abdominal dropsy, the pallor, the distressed and alarmed expression, the rapid, irregular venous pulse, and the cardiac embarrassment.

On July 26, 1921, the patient arrived in Richmond. Examination showed body weight 125 pounds, marked anemia, the heart enlarged, dilated, with systolic murmur along the base, irregularity of systoles, venous pulse, low diastolic and systolic blood pressure (50-90). The lungs were negative, except for subcrepitant rales at bases of both lungs. The abdomen was greatly distended, having a girth of 46 inches. The right lobe of the liver was not enlarged but the left lobe was enlarged and manifestly tender. There was an obvious excessive accumulation of dropsical fluid in the peritoneal cavity. The barrel-shape belly, the fluctuation, the flatness on percussion, the glistening, shining pale skin stretched tensely, were signs of excessive ascites. There was in the midst of the fluctuating abdomen a distinct tumor-like mass, easily palpable in left hypochondrium, about 6 centimeters from a midpoint of the left costal border. The tension of the abdominal wall and the excessive ascites rather interfered with a satisfactory demarcation of the mass. This mass had been previously suspected to be cancerous, but later, as the abdominal fluid receded under treatment, the outlines of the mass conformed to those of an enlarged spleen, with a projecting cape which appeared to be afloat with a sort of "bobbing" quality as one bimanually manipulated it. There were numerous dilated veins over the lower zone of the abdomen. There was no swelling of the legs or genitalia. The blood examination disclosed hemoglobin 20 per cent, red blood cells 2,308,000, white blood cells 2,200; negative Wassermann. The urine showed specific gravity 1,005, trace of albumin, no sugar, occasional pus and blood cell, and an occasional cast. Feces showed no blood, gross or occult.

X-ray examination by Dr. A. L. Gray, of Richmond:

Chest: Films made front and back show thorax slightly retracted on the left, otherwise normal in contour.

Diaphragm on the right one inch higher than on the left, surface smooth except for slight pleural adhesions on the right side. Some inflammatory deposit is seen to the right of the heart along the descending bronchial branches. Both hila contain calcified lymph nodes. Interlobar pleura is visible between the upper and middle lobes on the right.

Heart shadow is drawn or displaced slightly toward the left side.

Adominal and Gastro-Intestinal Examination: Plates of abdomen before the administration of barium meal show abdomen bulging toward the right side between the ribs and iliac crest. Abdominal viscera are partly obscured by the presence of fluid. A large oval mass resembling a greatly magnified kidney is seen in the upper left quadrant. This shadow

overlies a second shadow which projects below it. The outline of the right kidney is not visible.

After barium meal a plate made in the dorsal position shows the cardiac end of the stomach well outlined and presenting no pathological irregularity. It appears to be pushed slightly toward the right side.

Prone plates show the stomach of modified cow's horn type. There is no constant filling defect present. Pyloric end does not fill smoothly, which is probably due to retained food. Pylorus opens, duodenal bulb fills well, is approximately normal in shape, presents a notch at the upper part of its base, probably due to folds of mucous membrane (valvulae conniventes). The course of the duodenum is to the right and downward forming a short loop.

Six-Hour Examination: Stomach empty, meal has reached sigmoid flexure. No abnormal accumulation is seen in small intestine and what appears to be a faint outline of an appendix is visible. The course of the colon is outlined by irregular masses. The splenic flexure is greatly depressed, being on a somewhat lower level than the hepatic flexure.

Twenty-four-Hour Examination: Barium is now chiefly in the lower sigmoid and rectum. Scattered masses outline the course of the colon, which is similar to that seen in the six-hour plate.

Conclusion: There is no abnormality in the chest except what may be accounted for by a previous pleurisy. There is no evidence of organic, deforming or obstructing lesion of the gastro-intestinal tract.

Patient has a tumor outside the alimentary tract either springing from the kidney, spleen, or other structure in the upper left quadrant.

The diagnosis was made of Banti's disease with portal cirrhosis.

The patient's condition continued extremely grave. Surgical operation was considered; although advised, was not concurred in as the probabilities of relief from this source appeared hopeless. So it was determined to adopt a method of medical treatment consisting of a daily "medical trocar" and the use of a X-ray treatment of the spleen, with careful diet and haematinic treatment. This plan was followed with more or less persistency through the summer, fall and winter. The abdominal dropsy was the chief obstacle because of its mechanical effects upon the respiration and cardiac action. By periodic administration of saline cathartics, the loss of fluid from the bowels, with variation, was greater than the accumulation. This may be seen in the accompanying memorandum of the varying weights of the patient from July 27 to September 24, 1921.

Date	Intake ounces	Output ounces	Loss ounces	Gain ounces	Body Weight pounds
July					
27	51	74	21		125
28	33	65	32		
29					
30	43	55	12		
31	38	48	13		
Aug.					
1	41	55	14		
2	51	47		4	
3	43	68	25		
4	41	68	27		
5	34	53	19		
6	35	44	9		
7	39	43	6		
8	36	39	3		114
9	29	57	22		113 ¼
10	38	35		3	113 ¼
11	49	58	9		112 ½
12	38	34		4	
13	29	39	10		113 3/16
14	35	61	26		111 15/16
15	28	39	11		112 3/16
16	35	48	13		112 ⅛
17	39	52	13		111 3/16
18	34	30		4	112 ¼
19	33	45	12		112 ¼
20	52	46		6	112 ¼
21	53	53			112 ½
22	61	66	5		111 ¼
23	65	46		19	112 ½
24	56	48		8	112 ½
25	55	53		2	112 ¼
26	58	46		12	112 ¾
27	51	48		3	112 ¾
28	51	58	7		112 ¼
29	61	46		15	112 ¼
30	41	45		4	112 ¼
31	64	42		22	112 ¾
Sept.					
1	49	30		19	112 ¾
2	60	60			112
3	53	41		12	112 ⅛
4	55	49		6	112 9/16
5	39	48	9		111 5/16
6	51	44		6	111 13/16
7	55	64	9		111
8	54	45		9	111 3/16
9	54	47		7	111 ¼
10	45	51	6		111 ¼
11	60	54		6	112
12	54	55	1		110 7/16
13	61	45		16	112 15/16
14	51	41		10	111 15/16
15	51	42		9	112 3/16
16	50	50			113
17	51	62	11		111 ½
18	50	77	27		110 ⅜
19	54	52		2	109 ⅜
20	58	55		3	109 ⅛
21	60	42		18	111 ⅛
22	51	58	7		110
23	56	54		2	110 ¾
24	49	36		17	112 ⅛

XUM

After September, it became quite apparent that the patient was well in hand as regards the tide of dropsical fluid. It was manifested also that the X-ray treatment of the spleen was assisting in a more ready control of the ascites.

The Blood: Another serious handicap in the case was the low blood values of the patient. When she was taken in hand, July 26th, the hemoglobin was 20 per cent, the red blood cells were 2,308,000 and the white cells were 2,200. Food, fresh air, and haematinics were relied upon to build up the blood system. The X-ray action on the leucocytes added to our troubles. The following memorandum of blood examinations made from time to time, usually just after the patient had had an X-ray treatment, shows the gradual improvement in this system.

Date	Hem.	Whites	Reds	Polys.	Small Lymph	Large Lymph	Eosin.	Bas.
July 26	20%	2 200	2 308 000					
August 20	20%	1 900	2 644 000	67 %	28 %	5 %	Poikilocytes	
August 29	30%	2 400	3 136 000	77 %	20 %	3 %	Microcytes	
September 9	32%	1 600	3 448 000					
September 16	33%	1 800	3 280 000	76 %	20 %	3 %	1 %	
October 1	37%	1 400	4 072 000	63 %	30 %	6 %		1%
" 14	45%	1 200	4 160 000	64 %	25 %	8 %	1 %	2%
" 17	44%	1 500	4 104 000	74 %	19 %	4 %	3 %	
November 3	50%	1 400	5 240 000	63 %	19 %	3 %	15 %	
" 28	60%	1 400	5 216 000	74 %	15 %	3 %	8 %	
December 19 1922	60%	1 400	4 872 000	74 %	15 %	3 %	8 %	
January 9	63%	1 400	4 640 000	65 %	22 %	3 %	10 %	
" 30	64%	2 200	4 772 000	70 %	16 %	6 %	8 %	
February 20	75%	1 800	4 048 000	78 %	13 %	3 %	6 %	
March 13	79%	800	4 592 000	50 %	21 %	8 %	18 %	2%
April 3	68%	1 800	5 376 000	64.8%	12.8%	2.4%	20 %	
" 26	77%	1 500	4 232 000	62 %	14 %		24 %	
May 13	70%	1 500	4 992 000	71.2%	16.8%	1.6%	10.4%	
June 5	77%	1 200	4 224 000	60 %	28 %	2.4%	9.6%	
" 20	77%	1 500	4 380 000					
July 12	78%	2 160	4 706 000					
August 12	85%	3 008	4 606 000					
October 24	58%	1 500	4 112 000	70 %	17%	8 %	5 %	
December 5 1923	57%	2 200	3 368 000	60 %	28%	8.5%	3 %	
March 29	65%	2 100	4 240 000	63 %	30%	3.5%	3.5%	
June 21	62%	1 600	4 344 000	59 %	35%	2 %	4 %	

The X-ray treatments were conducted by Dr. A. L. Gray of Richmond. The patient received them at intervals of three weeks. The spleen-mass was bombarded with the X-ray with evident effect. Following the days of treatment, the ascites appeared to be more easily controlled. This course of X-ray therapy was continued through the fall and winter and spring following. The patient in the late spring months was manifestly better clinically; the ascites disappeared, the tumor mass diminished, the blood values increased, the cardiac strength increased, the physical well-being improved. The patient in the middle of June, 1922, left her Richmond home for her summer home in Maine. During the summer, 1922, and winter following she has appeared to be in good physical condition with a weight of 135 lbs., and was freed from symptoms of Banti's disease, excepting leukopenia and slight splenic enlargement.

In connection with the foregoing, it may be of interest to note here the surgical results of splenectomy, reported by W. J. Mayo, *J. A. M. A.*, July 2, 1921, page, 35: Splenectomy was performed in six cases of primary biliary cirrhosis with greatly enlarged spleens. Five of these patients recovered from the operation; three were alive at two years; two were alive at three years; and one was alive at five years after splenectomy. Up to January 1, 1921, 249 spleens had been removed at the Mayo Clinic for all causes with a mortality of ten plus per cent. Seventy-one of these were splenic anemia, with nine deaths.

Stuart Circle Hospital.

PROSTATECTOMY: A REPORT OF 25 OPERATIONS WITH ONE DEATH.*

By J. SHELTON HORSLEY, M. D.,
and
AUSTIN I. DODSON, M. D.,
Richmond, Va.

Since December 1, 1919, Dr. A. I. Dodson has been urologist to St. Elizabeth's Hospital. From that date to the present, we have done twenty-four prostatectomies at St. Elizabeth's Hospital, and one at the Retreat for the Sick. The prostatectomy has been done by Dr. Horsley. Dr. Dodson has had charge of all of the urological features except the operation of removing the prostate. Dr. Dodson has also done the transfusions of blood, when this was indicated.

These twenty-five prostatectomies were done on twenty-four patients. One patient, whose prostatic enlargement was marked and on whom the prostatectomy was done by the perineal route, had further bladder discomfort and a cystoscopic examination showed that some hypertrophied prostatic tissue was left and that there was a small diverticulum in the bladder. At later operation by the suprapubic route removed the remnant of the hypertrophied prostate and closed the diverticulum.

We feel that there is no type of surgery that requires more careful teamwork than major urological surgery. In operations upon the kidney it is essential to know the function of the other kidney. A nephrectomy sacrificing the only good kidney a patient has is not justifiable these days, though this was a not infrequent cause of death after nephrectomy before cystoscopic work had been perfected.

A removal of the growth of the prostate gland is an important step, but is only one of the several important steps in the treatment of prostatic hypertrophy. No matter how carefully and skilfully the operation is done, if the patient has not been properly prepared and if the after-treatment is not satisfactory, a poor result or death will occur. On the other hand a bungling operation with the loss of an unusual amount of blood may cause a fatality even though the patient may have been in good condition.

The technic of the operation should be suited to the individual case. We are doing prostatectomies now more by the perineal than by the suprapubic route. Not infrequently the enlargement of the prostate grows up into the bladder almost like a polyp, and in such cases the suprapubic operation is the proper method. In order to determine intelligently the type of operation to be done, it is necessary to know the kind of prostatic enlargement present. We investigate that either by cystoscopic examination, when this can be done without too much trauma, or else we make the preliminary suprapubic cystotomy for drainage large enough to introduce the finger and palpate the prostate. In one of these two ways we can gain a fairly accurate idea of the growth and consequently the best method of attack. That no one operation is suitable for all cases is due to variations in the nature of the growth. It is not to the best interest of the patients to require every one to submit to the same operative procedure regardless of the type of pathology he presents. Fourteen of our cases were operated upon suprapubically, and eleven by the perineal route.

The only death in this series was one of the early cases where a suprapubic operation was done. The preliminary suprapubic cystotomy for drainage was performed under local anesthesia. After nineteen days the patient's general condition seemed satisfactory, and an attempt was made to remove the prostate by merely dilating the suprapubic opening. The tissues about the pubis were fixed, but those above, being not fixed, tore. The bladder had been previously irrigated and argyrol had been instilled. After the operation had been completed, an inspection of the wound showed a small tear about one and one-half inches long in the peritoneum in the upper portion of the wound. This was sutured. The patient made a satisfactory immediate recovery, but that evening developed a high temperature with peritonitis, and died the following day. Post mortem showed a small amount of bloody fluid in the abdomen and apparently a very virulent peritonitis.

Since that time in doing a suprapubic prostatectomy subsequent to a suprapubic cystotomy for drainage, the opening is enlarged with a knife and the tissues about the pubis are dissected free, and no attempt is made to stretch the fistula with the finger.

There is no routine method of removing the prostate by the suprapubic route. The technic followed by Dr. Robert C. Bryan seems excellent. The mucosa is nicked or torn over

*Read at a meeting of the Richmond Academy of Medicine, March 11, 1924.

the most prominent intra-urethral part of the prostate and the lateral and middle lobes are loosened and enucleated. This seems better than following the Squier technic as a routine measure and certainly gives a satisfactory access. When the enlargement of the prostate bulges into the bladder and forms a kind of polyp with a pedicle, the mucosa over the pedicle is opened and the tissue around the attachment is enucleated. Frequently small adenomas will be found around the base of the pedicle. The bleeding is controlled by packing the raw surface rather firmly with strips of iodoform gauze that have been twisted into a cable. This packing is held in place by sponge-holding forceps, the handle of which protrudes from the wound of the bladder. A few silkworm gut sutures are placed in the abdominal wall. Some of them are tied; others are left loose, to be tied after removal of the packing. Sometimes sutures of catgut may be inserted into the bladder opening, if it is wide, to be tightened after the packing is removed, though this is not always practical. The handle of the sponge-holding forceps is fastened with adhesive plaster, and this in turn is connected with either a rubber band on each side or with strips of adhesive, which make gentle pressure on the forceps and so keep the packing firmly in the bed of the prostate. This method is not original, but has been used by many surgeons and it seems to us to be the simplest and probably the most effective way to control the bleeding.

There are several objections to the insertion of a rubber bag. Smooth rubber does not promote clotting of blood as gauze does. Consequently it is necessary to have much more pressure on the raw surface when using a smooth rubber bag to control the bleeding than when gauze is employed. This extra pressure cuts off the blood supply from the healing surface and may retard healing, predispose to infection, or theoretically might cause actual necrosis. Then, too, the removal of the bag necessitates pulling up through the urethra the tube, the end of which may have become contaminated, thus spreading infection to the bladder.

As for the perineal technic, we make the inverted U-shaped incision, insert a sound into the urethra, cut the central tendon and the recto-urethralis muscle, and thus expose the deep membranous urethra. At this point, instead of opening the membranous urethra, we carry the dissection back to the prostate itself, and make the incision in the margin of the urethra that impinges on the prostate, so the incision is really chiefly in the prostatic urethra. By making the incision in the prostatic urethra, injury to the external sphincter is avoided, and it leaves the patient with the external sphincter intact, which is important in regaining control of micturition. The prostate is pulled down by Young's tractor. The levator ani muscle is dissected up on each side bluntly and lateral incisions are made into the capsule, going deep into the prostatic tissue so as to expose the hypertrophied portion of the prostate thoroughly. After finding a line of clevage, the dissection is continued with the blunt end of a periosteal elevator, and finally with the finger. We endeavor to keep as close to the capsule as we can. Recently we have been enucleating the entire prostatic growth in one piece, as shown in the illustration. (Fig. 1). In many instances this can be

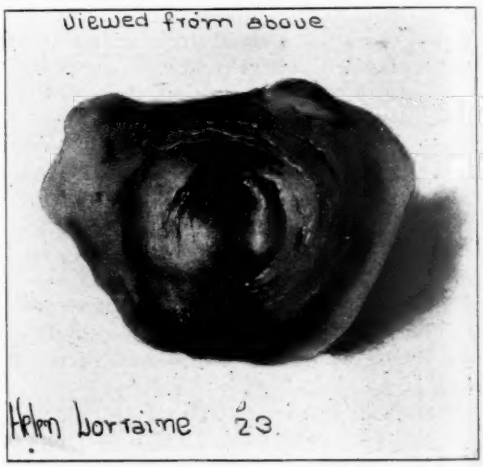

Fig. 1 (a)—Drawing of prostatic growth removed in one mass by the perineal route. This view is from the surface next to the bladder.

done as well by the perineal method as by the suprapubic route. The prostatic hypertrophied mass is loosened and is pulled down on the shaft of the tractor. In this way we are assured of getting all of the hypertrophied tissue, and the objection to the perineal method of leaving the middle lobe behind is overcome.

While the tractor is still in place, the cavity from which the hypertrophied prostate has been enucleated is packed snugly with iodoform gauze, which has been soaked in peroxide of hydrogen. The peroxide quickly disinteg-

rates the platelets of the blood and forms the material for fibrin ferment for clotting.

Fig. 1 (b)—View of the same specimen from the outer surface showing only a small amount of urethral mucosa attached to the growth. Most of it has been stripped off by the enucleation.

In our recent cases we inserted a soft rubber catheter into the urethra and then into the bladder before the packing has been completed. In this way the continuity of the urethra is established and at the same time packing can be done much more accurately than when a large tube that comes out of the perineal wound is used. It also seems to promote a quicker closure of the perineal wound, and makes a rather persistent perineal fistula less likely to occur. If the bladder is fairly clean, the suprapubic drainage wound is freshened and is closed with interrupted suture of silkworm gut. If there has been much sepsis, however, this may not be wise.

Fig. 2—Photomicrograph of adenoma of the prostate (X150). This is the type of tissue usually found in prostatic hypertrophy. This is a section from the gross specimen shown in Fig. 1. Slightly reduced.

The usual prostatic enlargement consists of an adenoma. The adenomatous areas are abundant, the cells are long, cylindrical, and the cavities of the acini are large. (Fig. 2). Frequently milky or pussy material can be expressed from the cut portion of the enlarged prostate. Occasionally, in attacks of long inflammation, the stroma is relatively very abundant, and frequently there is marked leukocytic infiltration.

Cases of carcinoma of the prostate are much more frequent than was formerly supposed. In our series of twenty-five cases, three had definite carcinoma, and there were three other cases of carcinoma too advanced for prostatectomy. The prostate was firmer than normal, which is not found in the adenomatous condition. In one of these patients, Mr. W., who was in the early series, the suprapubic method of operation was used. (Fig. 3). It was impossible to enucleate all of the involved tissue, and some of it was left behind. This was followed, however, by radium treatment, which produced marked intoxication. The patient is free from recurrence, and is in good health at

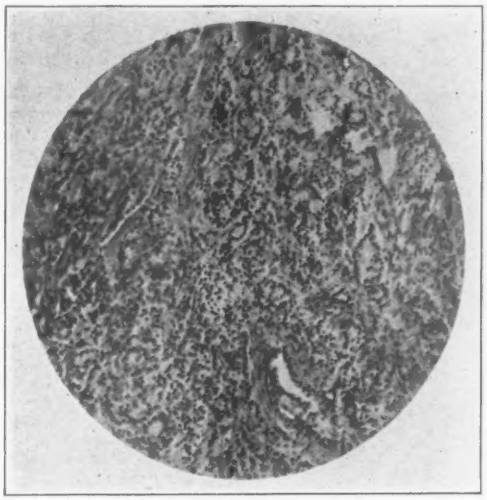

Fig. 3—Photomicrograph of cancer of the prostate showing adenocarcinomatous type of growth of moderate malignancy. (X150). Slightly reduced.

present, nearly three years after operation. In one of the cases in which a perineal prostatectomy was done, the growth was recognized by the difficulty of the enucleation to be cancer. A more radical operation than ordinarily is done was performed, and five radium needles were stuck into the bed of the prostate. The patient suffered considerable shock, was transfused, and recovered. On account of the rather extensive dissection and the use of the radium he never fully regained control of his urine. The control was fairly satisfactory when he was lying down, but apparently there was no control when he was standing up. The patient had metastases, and died thirteen months after operation from metastases in the spine and bone. The third case, operated on recently (January 23, 1924), showed definite, though not a very malignant type of cancer in one small portion of the growth.

We have had in the series one myoma of the prostate. This resembled a cut fibroid. It protruded into the prostate almost as a polyp, and was removed suprapubically. Microscopic section showed abundant smooth muscle cells with some fibrous tissue. It had the typical structure of uterine myoma. (Fig. 4). We make histologic examinations of all

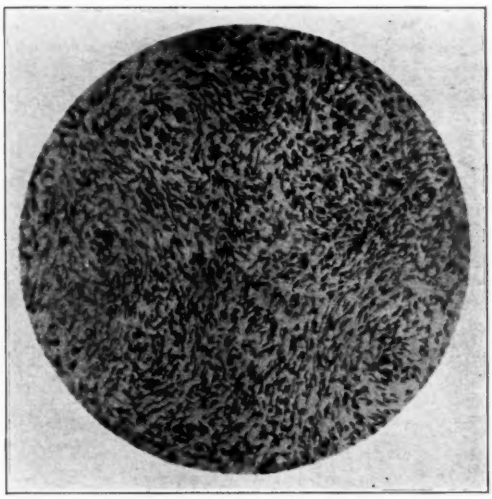

Fig. 4—Myoma of prostate. Note the histologic resemblance to myoma of uterus. (X150). Slightly reduced.

the prostates removed, and this is the only myoma that we have encountered.

In the preliminary preparation of a patient suffering with prostatic disease the first consideration is his operability. A large percentage of these old men because of ignorance of their condition or fear of surgery only present themselves when they have become completely incapacitated. Such neglect carries with it inroads on the integrity of the kidneys and heart in particular, and to a less degree on the entire organism. A few of these patients on account of marked infirmity or advanced malignancy must be satisfied with temporizing measures, while a large majority will improve with proper treatment to a sufficient extent to justify prostatectomy.

Of thirty patients with prostatic hypertrophy whom we have treated since December 1, 1919, six did not have prostatectomy—three because of advanced malignancy and three because of advanced age and infirmity. The remaining twenty-four were operated upon, with one operative death. One, operated upon for cancer of the prostate, died from metastases thirteen months after operation, and one died of senile dementia about one year after operation. Eighteen are well and have good functional results. One patient is still in the hospital, but his bladder condition is so far satisfactory. One patient has a small residual, but is greatly improved. One who has been out of the hospital six weeks, after perineal prostatectomy, has weak control over urination and has still some cystitis.

The patient who furnished our only operative mortality was 64 years of age. Our oldest patient on whom we did a prostatectomy was 79½ years of age. We operated upon him by the perineal route. Twelve cases in this series were over 70 years of age.

The first step in the treatment of the prostatic patient is bladder drainage. The type of drainage to be instituted must be decided for each case. An in-dwelling catheter is the method of choice if the patient can tolerate it. Most of our cases have suffered so much from the presence of the catheter that it has been necessary to institute drainage by suprapubic cystotomy. When this is done a soft mushroom catheter is used and the bladder sutured around it water-tight, thereby making the patient much more comfortable.

The length of time required to determine whether a patient can stand prostatectomy differs in every case. Those coming early with very little residual urine and all their organs functioning normally may be operated upon after a few days' preliminary care, while

others require weeks and months. We have had three patients to go home with suprapubic drainage under the care of their physicians for a number of months before they were considered safe operative risks, two because of circulatory unbalance, and one because of poor kidney function. It is interesting to note that constant drainage of a bladder long accustomed to retention seems to have as marked influence on the crippled circulation

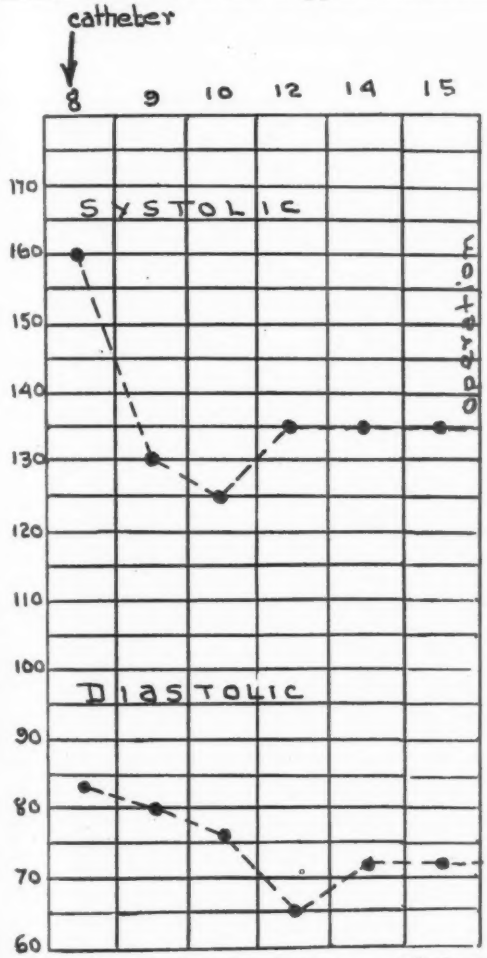

Fig. 5—Chart showing fall in blood pressure following institution of drainage of the bladder. Note that after a few days the blood pressure reaches a constant level.

in some cases as it does on the damaged kidneys. There is always a marked fall in blood pressure following the relief of long-continued retention of urine, and we believe that this is a considerable factor in the suppression of urine following the too rapid emptying of a distended bladder. It is our custom to empty all bladders gradually when there is a residual of more than ten ounces. We have noted a fall of 35 points in the systolic pressure following the institution of drainage when the residual was only eight ounces. (Fig. 5).

It will usually be noticed that following the institution of drainage the patient's kidney function, blood pressure and sense of well-being decline together for the first few days, and during this time the patients are closely watched. A full intake of fluids is required, and active supportive measures are instituted if necessary. Digitalis is the most reliable drug and is given to complete digitalization. Frequently strychnine seems to add to the general tone of these old men and may prevent flatulence and intestinal torpidity to which they are prone. Diuretics have not proven of value in our hands, and hot packs are too depressing for the average old man. We have usually had no trouble controlling uremic symptoms by a large fluid intake, free elimination by the bowels and cardiac support.

Following the institution of drainage, the blood pressure is taken daily and the kidney function checked up from once to twice a week, according to the patient's general condition. We use the phenolsulphonephthalein test, the blood urea nitrogen estimation and the specific gravity and total volume of the urine as guides to the kidney function. These tests often show marked fluctuation during the first few days following drainage. When the kidneys become adjusted to normal conditions and begin to improve in function, the tests taken at different times become more constant, indicating that the kidneys have reached their normal function. The blood pressure also fluctuates markedly following the institution of drainage, and we require that a constant blood pressure be maintained at least three days before prostatectomy is done. Every patient with any cardiac weakness is thoroughly digitalized before operation.

The choice of an anesthetic enjoys a prominent place in the literature on this subject. At first we used ether, then gas-oxygen, and recently ethylene-oxygen anesthesia. In the light of our present knowledge, ethylene-oxygen is an ideal anesthetic for these patients. It gives sufficient relaxation for operation by either route, does not retard the function of any organ, and is peculiarly free from

nausea and flatulence so distressing to these old men.

Just before the patient is taken to the operating room his urethra and bladder are thoroughly irrigated with boric acid solution and about one ounce of ten per cent argyrol is injected into the bladder through the urethra. As soon as the patient is under the anesthetic, hypodermoclysis of Locke's solution is started. In this way a large amount of fluid is given without discomfort to the patient and when most needed.

When the operation is over, the patient is returned to a warm room and kept absolutely quiet, sufficient morphine being given to relieve all discomfort. The pulse is closely watched, and frequent blood pressure readings are taken. In the event of excessive bleeding the packing is reinforced. The hypodermoclysis is kept up during the first twenty-four hours or until the patient has taken about 2,000 c.c. Fully ninety-five per cent of all prostatic fatalities are due to shock, hemorrhage, uremia and sepsis. A persistently low blood pressure from shock or anemia from hemorrhage, in addition to its immediate danger, predisposes the patient to uremia and sepsis. Hemorrhage is a predisposing factor in shock, and we have found direct blood transfusion of inestimable value in the treatment of both hemorrhage and shock. In three of our cases we believe it saved the life of the patient. In others it has insured a smoother convalescence.

At the end of twenty-four hours after operation the packing is removed under ethylene-oxygen anesthesia, and any loose sutures are tied. This is done in the patient's room. Thorough drainage is assured either through a suprapubic tube or in-dwelling catheter. Both the external wound and bladder are irrigated daily with warm boric acid or potassium permanganate solution. The patient is thereby kept more comfortable and the danger of sepsis is minimized.

Uremic symptoms following prostatectomy in properly prepared patients are usually due to an ascending infection from the bladder brought on by disintegrating blood clots or incomplete drainage. The attack is ushered in by a chill followed by high temperature, a diminished urinary output and sometimes with delirium or coma. The patient usually responds promptly to forced fluids and irrigations of the bladder.

For the prevention of pulmonary complications, the patient's position in bed should be changed frequently and he should be set up in bed as soon as possible. To insist that he get out of bed in three or four days, especially against his will, is not consistent with the best interests of the patient.

In conclusion, we would emphasize the necessity of a stable kidney function and circulatory system before operation, and the desirability of selecting the operative route to fit the character of the growth. We wish also to emphasize the value of the direct transfusion of blood in the treatment of severe shock and hemorrhage, and to call further attention to the value of forced fluids, free drainage and the continuation of cardiac stimulation, when necessary, as prerequisites to a smooth convalescence.

617 *West Grace Street.*

THE MINIMUM STANDARD OF CARE THAT SHOULD BE ACCORDED THE PUERPERAL WOMAN.*

By BURNLEY LANKFORD, M. D., Norfolk, Va.

The interest in the pregnant woman too often wanes with the delivery of her child, and scant attention is given her during the next six to eight weeks. Those of us who are interested in obstetrics and increasingly better obstetrics, in our efforts to better the art, should endeavor to encourage the practice of extending to every woman just as careful post-natal attention, as she has received pre-natal attention. Such care would unquestionably result in great benefit to the women of the land.

It is not more difficult to secure the co-operation of women, in the effort to properly follow them after delivery, than it is to get their co-operation during pregnancy, when we are trying to conduct them to a safe conclusion. In a series of three hundred consecutive cases recently reviewed in my own work, there were only four who neglected or refused to return for a final examination, six weeks or thereabouts, after delivery. Few women will persistently neglect themselves, if the importance of this final survey be explained to them.

For the purpose of this paper, let the puerperium begin one hour after the end of the third stage of labor. There should be a place on every chart or in every note book, for the

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina, in Newport News, Virginia, December 4-6, 1923.

following notes which should be recorded by the attendant himself, one hour after the expulsion of the placenta: the temperature, the pulse, the location and condition of the fundus, and the amount and character of the lochia. If this be regularly done, certain accidents of the early puerperium will be avoided, and the later puerperium be made more comfortable. Most of the bleeding from the uterus takes place during the first hour after delivery, and if at the end of that time, gentle, purposeful pressure be made upon the fundus, several clots, possibly large ones, may be expressed from the upper vagina or lower uterine segment, thereby saving the patient many uncomfortable after pains as well as getting rid of a possible nidus of infection. However, the greater value of this close observation of the patient after one hour is the prevention of what is often called a "late" or "secondary hemorrhage," which is usually not discovered until some hours later, when huge clots may be passed, which frighten the patient, the nurse and the doctor. What has happened is not a secondary hemorrhage at all, but the later expulsion of previously formed, large clots, the result of continuous oozing from the placental site, and retained in the vagina and uterus, this retention being encouraged by the dorsal position and the practice of having the woman's legs held tightly together.

The inner surfaces of a woman's thighs when apposed, lightly seal the vaginal outlet and, when in addition a tight thick pad is applied and the woman cautioned to keep her knees together, we have, in the presence of slow oozing, all the conditions conducive to the formation and retention of clots, and for the continuation of the bleeding: the uterus cannot contract and retract properly when clots are present in its interior.

The attending physician should assure himself that the patient has been made comfortable before he leaves her, a comfortably applied abdominal binder (which when properly applied *is* a comfort), a pillow under her knees, or a comfortable lateral position, with pillows to back, a semi-darkened room, an encouraging word to the young mother, an admonition to relax and go to sleep, after which she may have and nurse her baby. Such little attentions are presumably the nurse's business, but they should be the doctor's as well, and no little detail that will tend to make a mother comfortable, after the trying ordeal through which she has just passed, should be neglected by, or thought beneath the notice of, the attending physician.

After six or eight hours or sometimes longer, depending upon various circumstances, the baby should be put to the breast for a period not to exceed five minutes. The nursing should be limited to five minutes at each period, until the milk begins to flow freely. The claim is made by some that the baby should never be put to the breast until the milk begins to "come in:" and that such practice is a certain preventive of cracked nipples. This would seem to be carrying a good point too far, and would probably invite as many difficulties as it would prevent. However, it is certainly true that if a hungry, vigorous baby be put to a breast every three or four hours and allowed to remain there for fifteen minutes or longer, *before* the breast has begun to secrete freely, such a breast runs a great risk of having the nipple macerated and blistered, and later on, cracked, fissured or excoriated. Five minutes every four to six hours will be sufficient to exercise the needed stimulating effect upon the uterus and breasts, and to give the baby its immunizing (?) dose of colostrum: such a schedule will slowly accustom the epithelium covering the nipples to the unusual strain, and give it a chance to react gradually, with thickening of the superficial layers, rather than rapidly, with probable blister formation. When the milk flow is established and the baby does not have to spend most of his time chewing the nipple, the period of nursing may be lengthened to fifteen minutes or thereabouts every three or four hours. Where a baby is satisfied and gains consistently on a four-hour schedule, such is unquestionably more satisfactory to all concerned than the three-hour schedule. My own experience has been that the four-hour, *satisfactory*, schedule has been the rare exception. Should labor terminate around nine or ten P. M., it will be wise to see that the mother is given an undisturbed rest for the remainder of the night; the baby need not be put to breast before morning.

The nipples should be carefully protected at all times when not in actual use. Prospective mothers should be advised to have gowns opened down the front (by snappers), so that the breasts may be easily accessible: the necessity of having to pull the gown up from

the bottom in order to properly expose the breast for nursing or examination, is very poor technic. A very simple plan of protecting the nipples is this: an ordinary shoe eyelet is fastened on to a small strip of Canton flannel, one by two inches, (by a shoe-maker, or a shoe-maker's tool), such a strip is fastened on to the skin on each side of the nipple, by a small piece of adhesive plaster, a square of gauze is then placed over the nipple and held in place by stretching a little rubber band from one eyelet to the other. Such a dressing is very easy for the nurse or mother to take care of, and the easier such little details are, the more likely they are to be observed. When the nipples become sore or excoriated, the most comfortable protection I know of (which can also be held in place by the strips and bands just mentioned) is furnished by the lead or aluminum nipple shield, which is to be worn directly over the nipples at all times, except when being nursed. The lead shield is an old affair which certainly deserves to be re-discovered. Any crack os fissure should be touched at once and quite accurately, by the solid stick of silver nitrate. The most convenient way of applying silver nitrate is to have round pointed tooth picks dipped into the pharmacopoeial reagent known as Argent Nit. Fusum. This leaves a tiny bit of solid silver nitrate on the end of each pick, with which a crack or fissure may be accurately touched, which is difficult to do with silver solutions.

When the breast becomes engorged and tender as many do about the second or third day, nothing gives so much relief from pain as the proper application of two long, broad, supporting bands of adhesive plaster. Such bands should be two or more inches wide and long enough to stretch from axilla to axilla. While the breasts are held upward and inward (strongly) by the nurse, the lower band is applied and should run from one axilla to the other, under the breasts, exerting a lifting pressure. While the breasts are then held inward by the nurse, the second band is applied from axilla to axilla, and running across the upper portion of the breasts exerting a strong inward pull upon each breast. The edges of these bands should not approach nearer than two inches to the nipples. If we look upon the breasts as a wheel with the nipple as the hub, the adhesive bands serve to keep the spokes or milk ducts straight, whereas the breast binder, no matter how carefully applied, seldom does more than press the breasts back against the unyielding chest wall, with consesequent kinking of the ducts and engorged blood and lymph vessels, with formation of tender lobules, or whole lobes may be thus affected. Such bands not only have the advantage of holding the breasts more comfortably and efficiently, but also do not have to be applied but once; the breast binder has to be opened and re-applied every time the baby nurses. There is no comparison between the relief afforded by the two methods. A woman who has been suffering for hours with engorged and hanging breasts will experience almost instant relief and will often spontaneously and gratefully thus express herself. After the stage of engorgement has passed, the plaster should be removed, and will seldom have to be re-applied. If taken off at the proper time, the skin will not have been irritated.

Many remedies have been advanced for the relief of after pains. If the uterus has been made to expel the clots formed shortly after the expulsion of the placenta, and, despite this, the contractions be of sufficient severity to keep the patient miserable, the one remedy that may always be depended upon to give relief is a small dose of morphia under the skin. It should be remembered (and explained to the patient) that a certain degree of after pains is physiological and necessary: a small dose of morphia will relieve the *pain* without interfering markedly with the contractions of the uterus, which is the end to be sought.

In the interest of good drainage, it is good practice to elevate the head of the bed in every case. With the promotion of efficient drainage also in view, the patient should be instructed to keep her knees well apart at all times. When a woman with average size thighs lies on her back with knees together or slightly crossed, the vaginal outlet is completely closed and drainage markedly impeded. This is a very important prophylactic measure, and not only should the nurse and patient be carefully instructed about it but in addition the attending physician should see that his orders are being obeyed. Several times during the twenty-four hours the patient should be turned, or made to turn, on her face with knees well apart, and kept in that posture for half an hour. This helps to empty the vaginal cul-de-

sac where the lochia tends to collect, stagnate and cause unpleasant odors, if nothing worse. The compliance with the above directions will not adversely affect any sutures that may be present.

Every effort should be made to have the post partum woman void, before resorting to the catheter. There are very few who will be unable to void within the first twelve hours if the following routine be regularly followed: first, a warm bed-pan and warm sterile solution poured over the vulva; if not effective, second, an s. s. enema, warm bed-pan and warm solution poured over while enema is being returned; if still ineffective, third, a second s. s. enema and patient held in upright position by nurse while enema is returned. In the meantime the patient should be (subtly) threatened with catheterization, if she does not void! If these all fail, sometimes the injection of one ampoule of pituitrin, given about fifteen minutes before the attempts at voiding are to be made, will produce the longed for flow of the amber rill! If catheterization has to be done, as it sometimes will, it should be with minute care, and, it seems to me, it should be done the first time by the doctor who confined the woman. It is usually the cases of difficult labor, severe laceration, etc., that have to be catheterized, and the doctor who did the repairing knows that particular lacerated anatomy much better than a nurse. If a rubber catheter is to be used, the process will require two persons to perform it properly, one to expose and keep exposed the introitus, by very carefully and gently separating the labia, while the other gives entire attention to securing an aseptic field and to passing the catheter, which should be handled with thumb forceps and not touched, even with the gloved fingers. If in addition to these precautions, the catheter be *well lubricated*, catheterization may be done without fear of producing an irritable urethra or cystitis. Dr. Howard Kelly, many years ago apparently proved that the surest way of preparing an aseptic introitus, for the passage of a catheter, is to sponge the introitus with three wet, boric acid sponges followed by one dry, and this twice repeated (twelve sponges in all). Do not let nurse or patient assume that because the catheter had to be used the first time it will have to be repeated.

For the first week after delivery, it seems to be good practice to do away with purgatives and, in their stead, give s. s. enemas every other morning. McPherson, at the New York Lying-In, recently initiated this plan and, in three hundred and twenty-two cases, thus treated, there developed only three febrile temperatures during the puerperium, while in a like number of cases, treated as controls, at the same time, with the ordinary purgatives, there developed twenty-eight febrile cases. Thus, in addition to apparently reducing the incidence of febrile cases, which is of paramount importance, only one movement is produced which can be timed to suit the convenience of the patient and nurse, whereas with purgatives several movements may be the result and possibly at inconvenient time. Enemas do not affect the baby nor the milk secretion, whereas purgatives often do. After the first week it is no doubt wise to give a brisk laxative once, in order to be certain that the whole bowel is well evacuated.

Several days after delivery, exercises should be begun for the purpose of strengthening the abdominal muscles. The simplest and easiest is to have the patient, without pillow, raise her head until she can dig her chin down against her chest: by this simple maneuver the muscles of the abdominal wall are gently exercised as can be well demonstrated to the patient by having her lay her hand against her abdomen as she raises her head. Having her do this will enlist her interest and assure her co-operation. This exercise is easy but efficient and not too vigorous. Most women will take them where many cannot, and as many more will not take the more difficult body and leg raising movements.

As to diet: let the normal case eat what she wishes and as soon as she wishes. Of course some discretion should be used about the digestibility of various foods while a woman is lying around doing no physical work; the practice which seems widespread today, of giving the post partum woman a square meal as soon as she wants it, seems wise.

One of the first questions women begin to ask during their lying-in period is, "When may I get up?" The same answer cannot be given to each. When a woman has been through an uncomfortable, trying pregnancy, followed by a difficult or prolonged labor, a good long rest in bed will surely be to her benefit. On the other hand, certain patients may be al-

XUM

lowed to begin getting up very much earlier. It would seem better to err, if at all, on the side of keeping them in bed too long than not long enough. In any event, a back rest may be allowed after the first few days, which is not only pleasing to the patient but also promotes drainage. About the twelfth to fourteenth day a gentle pelvic examination should be made. Beginning displacements and subinvolution may be detected at this time and appropriate measures taken to correct them.

From the sixth to eighth week post partum, a final examination should be made, which should be more or less of a complete physical. At the least a note should be taken on the weight, blood pressure, urine, breasts, abdomen, pelvic floor, pelvis and contained organs. The importance of this final examination should be impressed upon the patient, else many will side-step it, wilfully or carelessly, until forced to seek relief at some later date, by symptoms that should have been, and in most cases could have been, prevented. For instance, in a series of three hundred consecutive cases of my own, recently reviewed, seventy-two were found to have retroverted uteri, six weeks after delivery. Fifty-nine of these after having been replaced remained in good position thereafter, either without any further treatment, or after having been held for one month by a pessary. These fifty-nine were all checked up by further examination, approximately four weeks after the removal of the pessary. The remaining thirteen had to wear pessaries for longer periods, one of them as long as seven months, during which time she became pregnant again. The pessary was not removed until the fundus cleared the promontory, after which it was removed and the patient went on to term. (Following this delivery, there was no return of the displacement). Only three of the seventy-two fell into the class of repeated retroversion whenever the pessaries were removed, and these three were advised to have suspensions done. Five cases required an anaesthetic before the fundus could be righted, not so much because of great difficulty of manipulation as because of the hypersensitive type of woman. A recently retroverted uterus is not difficult to replace: a displacement of long standing is not only more difficult to correct, but also less likely to stay corrected after the support has been removed. This in itself is sufficient reason for making a pelvic examination six weeks after labor.

The study of even so few cases as these shows that much discomfort, probably much semi-invalidism, and doubtless many abortions, may be prevented by such simple measures of treatment when instituted at the proper time.

When potential cystocele, rectocele, or both, are found at the final examination, an effort should be made to correctly evaluate the degree of distress or discomfort being caused the patient, and reparative surgery advised in the near, or more distant future. In any event, where the functional or cosmetic result has not been good, it will be wiser to tell the patient in language that will enlighten but not frighten her, that at some time in the future she will probably need reparative surgery. Otherwise she may fall into the hands of some friend or some thoughtless (or vicious) confrere, who will inform her of what a sad condition she was left in by the last doctor who confined her!

The profession now pretty well recognizes the fact that some muscle tears are inevitable, and that the supporting fascias are always over stretched and torn, and that exceedingly few women have as good pelvic floors after childbirth as they had before. No woman should be discharged without having this explained to her, for two reasons: first, women should not be allowed to think that they will re-assume the virginal state of their anatomy after childbearing, nor on the other hand should they be allowed to suffer from the uncomfortable consequences of badly torn structures, under the impression that such consequences are irremediable and that all women must suffer thus after parturition; second, the obstetrician should not be held totally responsible by the public for certain unavoidable conditions the result of childbearing. Such misapplied responsibility is encouraged whenever a woman is discharged without a final examination, or when, after such examination, she is not told her true condition but later on finds out from some other source.

The object of all serious obstetricians is to leave the woman in as good or better condition than when she became pregnant: if this end be steadfastly borne in mind by every one who does obstetrics, it is inevitable that the women of the future will enjoy better health than

have those of the past or those of the present, after they have made their great and distinctive contribution to the race. We should see to it to the very best of our ability that women are not penalized for this contribution.

"No questor for the Grail,
No searcher for the Truth,
Counts more than those who bear and rear
And love and nurture Youth!"

530 *Shirley Avenue.*

GASTRO-ENTEROSTOMY IN RETROSPECT.

By J. KENNEDY CORSS, A. M., M. D., F. A. C. S.,
Newport News, Va.

Surgery of the upper abdomen has received so much attention, and the number of operations and methods is so constantly increasing that I will not attempt to discuss or review them, but will confine myself to the report of a few of the old cases, and try to show the value of, and indications for, the old and much discredited operation of posterior gastro-enterostomy.

The first gastro-enterostomy was an anterior one done in 1881, but it was ten years later, in 1891, when the first successful posterior gastro-enterostomy was done, and in the next five years the operation was brought prominently before the profession by the work of Moynihan and W. H. Mayo. It soon became popular as a cure for almost all gastric and duodenal conditions, except cancer, and a palliative one for that condition.

The result of this widespread trial of the operation in the hand of many surgeons inexperienced in gastro-intestinal surgery was many failures, and many cases left worse than they were before any surgery was attempted. It did prove successful in the hands of the few who carefully selected their cases; and it also demonstrated the wide possibilities of surgery of the stomach, and laid the foundation for the wonderful work of today.

The pendulum has swung a long way since then to the pyloroplasties of Finney and Horsley, to the partial resections and excisions of today. It is not uncommon to hear the operation of posterior gastro-enterostomy described as obsolete, unphysiological, that it does not cure, the relief is only temporary, and the anastomosis only functions for a short period and then closes or ceases to act. The fact remains that it does function for years, that it does cure in properly selected cases, and that the failures were those of surgical technique, or wrong selection of cases that should have been resected, or had a pyloroplasty, or the large number of ulcers that called for simple rest and diet, either with or without appendectomy.

In my own work, covering a period of over fifteen years, I have never done a posterior gastro-enterostomy for a gastric ulcer, except one that has been situated at the pylorus, well healed and causing obstruction, and though these cases did well, at the present time I would prefer a resection, using the Bilroth direct anastomosis if possible. The indications for operation, in my opinion, are duodenal ulcer, where from location or inability to mobilize the duodenum, it is impossible to resect partially the stomach and duodenum, or where any dissection or infolding of the ulcer would cause so much stenosis that a new outlet from the stomach was necessary. It is in these cases the advocates of pyloroplasty claim their best results, but, personally, I prefer resection or posterior gastro-enterostomy to the other method. The question of closing the pylorus is not a vital one, and I see no reason in most cases to do it.

My following report is of a few old cases, dating from six to sixteen years ago, which I think demonstrate that the stoma does continue to function in most cases, and that the clinical condition in these cases is such as to justify the report as "cured."

Case 1.—Large duodenal ulcer complicating the vomiting of pregnancy. No gastric symptoms since operation sixteen years ago. Stomach empties through stoma in forty-five minutes. (Not in good evidence in X-ray, but does show under fluoroscope).

Case 2.—Daughter of Case 1. Also duodenal ulcer with contraction. Stoma open. No gastric symptoms after thirteen years' duration.

Case 3.—Large duodenal ulcer. Under medical treatment for two years—no relief. Post gastro-enterostomy eleven years ago. No gastric symptoms. Stoma open.

Case 4.—Severe gastric symptoms. Complete invalid, vomiting, eructation and hunger pains. This case was operated on seven years ago, and has fair health only. Has since been explored for cancer with negative findings. The stomach empties too rapidly. Gastric analysis shows nearly absence of hydrochloric acid due to its not being retained in

XUM

the stomach. She has been greatly benefited by a diet of heavy food and less liquids.

Case 5.—Almost complete pyloric obstruction due to a large gumma involving the pylorus and about one-third of the stomach; only thin liquids could pass. Gastro-enterostomy relieved the emergency, and luetic treatment relieved the gumma. Here the major part of the food is passing through the pylorus, but the anastomosis is open. General health good.

Illustration of Case 6. In printing from negative, picture was reversed.

Case 6.—This case was the largest duodenal ulcer I have ever seen and, if it had involved the pylorus or stomach, I would certainly have diagnosed as cancer. There was a history of severe intestinal hemorrhages for years, and all symptoms of duodenal ulcer, with obstruction. This case was operated on about seven years ago, and has been in perfect health since that time. You note that practically all the barium meal is passing through the opening.

Case 7.—This case suffered such severe pain that it was a differential diagnosis between gall-stones or ulcer. A large duodenal ulcer was present. Posterior gastro-enterostomy and no symptoms for six years, since operation. The X-ray shows a small stomach, but does not show the stoma as patulous, though I think a series of pictures would show it.

Case 8.—Is a resection for pyloric ulcer, which under microscope showed beginning cancerous degeneration. A resection was done

of about one-third of the stomach and part of the duodenum which was easily mobilized, and the direct anastomosis of Bilroth. This was one of the cases that would have been a failure under posterior gastro-enterostomy. It also shows an enlargement of the stomach, while the posterior gastro-enterostomies generally show some diminution in size.

During a recent visit to one of the leading clinics of this country, I saw a case of large duodenal ulcer operated on, in which it was impossible to remove the ulcer or resect that portion of the duodenum. The operator did a resection of about one-third of the stomach and pylorus, leaving the ulcer and doing an anastomosis of the jejunum to the cut edge of stomach. His explanation was that the ulcers were due to hyperacidity and, by lessening the size of the stomach, it lessened the secretion of acid. In a recent article by Carl Beck, describing his visit to many foreign clinics, he states that this opinion is generally held and followed by the surgeons of Central Europe, as their reason for resection of stomach, irrespective of removal of the ulcer. It seems to me this is a very radical method of controlling hyperacidity. In the same article he states that the English surgeons, as a rule, treat ulcer of the duodenum by gastro-enterostomy, and with good results.

In a recent article from the Mayo Clinics (1921—by Eusterman), they state that "a properly performed gastro-enterostomy in the presence of a chronic indurated ulcer of the duodenum or pylorus, is a splendid physiologic procedure." Also in the same article, "Carman, on repeated fluoroscopic examinations at variable intervals after operation, has shown that (1) the stomach is usually smaller than before operation, unless marked dilatation existed previously; (2) the stomach empties in considerably less time than the normal unoperated stomach; (3) the opaque meal passes freely through the stoma, which does not tend to contract materially." In conclusion, he states that "my experience with end results of several hundred well executed pyloroplasties, many performed under favorable circumstances, has not been encouraging. Recurrence of ulceration in the suture line adhesions to adjacent viscera, induration, contraction and narrowing, which provoke faulty pyloric mechanism and serious functional disturbances in the absence of adequate obvious cause are occasional sequelae. My answer to the charge that gastro-enterostomy is an unphysiologic procedure is that at least fifteen per cent of pyloroplasties eventually prepare a rich soil for a highly successful gastro-enterostomy."

In conclusion, I would say that one of the greatest advances in gastric surgery is the partial resection by any one of the accepted methods; but that the much maligned operation of posterior gastro-enterostomy still holds a strong and unshaken place in properly selected cases of gastric surgery.

THE PNEUMONIAS, THEIR ETIOLOGY AND DIFFERENTIATION.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

You have given me as my subject for discussion, "Pneumonia, Its Etiology and Diagnosis," but I hope you will pardon me for taking the liberty of changing it a little, and presenting you a short paper on "The Pneumonias, Their Etiology and Differentiation."

Pneumonia is well-known to us all for, taken as a whole, it is probably the commonest as well as the most fatal of all the acute diseases. Still we can never feel certain of it, as it acts so differently in different cases, and our prognosis one year may be a great deal worse than on the year before. Indeed, it is usual to class it as our most treacherous and fatal malady, which may appear as a complication of almost any disease, and may be so mild as to escape detection, or so severe that the prognosis appears hopeless from the beginning. The reason for this is that pneumonia should not be considered as one disease, for the term only means an acute inflammation of the lung, which may be produced by various infectious organisms, and which runs a different course according to its differing etiology. It is therefore not enough to diagnose a case as pneumonia in order to decide on its treatment and prognosis, but we should attempt, as best we may, to determine its etiology. I am therefore going to try to give you a short, and necessarily incomplete, sketch of the etiology of the most common of our pneumonias, and their possible differentiation clinically.

The first great division of the pneumonias is into the lobar pneumonias and the bronchopneumonias. This division is a marked one, both clinically and pathologically, if the dis-

*Read before the Norfolk County Medical Society.

ease runs a typical course, but etiologically either type may be produced by the same infecting organism, though there is no one organism which is always the cause of either.

Lobar pneumonia is defined as an acute infectious disease characterized clinically by a toxemia with fever, which often terminates by crisis, and pathologically by a uniformly diffuse inflammation of contiguous portions of one or more lobes of the lung, the cause of which is usually the diplococcus pneumoniae.

Broncho-pneumonia on the other hand runs no fixed course, produces various lung lesions, which can be roughly grouped as interstitial or lobular, but which vary greatly in extent, and which is caused by a number of different micro-organisms.

Lobar pneumonia, though varying with the epidemic, has the characteristics of a specific infectious disease; broncho-pneumonia lacks these characteristics entirely and, as Louis Hamman says, is really "a heterogenous mass of clinical material" rather than a specific disease.

Acute lobar pneumonia is generally recognized as being usually produced by the diplococcus pneumoniae or pneumococcus, other organisms such as Friedlander's bacillus and streptococci being only infrequent causes of this disease. But the pneumococcus group is not homogeneous, there being many different varieties which, though looking and growing alike, have different effects on the body and different serological reactions. This accounts for the differences in the severity of our pneumonias in one year, when practically all get well, from another year, when a large percentage of the cases are fatal (though I must say we are apt to attribute the results in the former case to our skillful treatment, and in the latter to the will of God). It is therefore customary to group pneumococci into four types, the first three having distinct serological characteristics, and the fourth being made up of the remaining kinds.

It is of interest to note that Types I and II, while found in the mouths of the majority of cases of acute pneumonia, are seldom found in the mouths of healthy persons, who have not come in contact with pneumonia cases. On the other hand, the pneumococci which are found in about fifty per cent of normal mouths belong almost entirely to Types III and IV. Pneumonias, occurring more or less in epidemics, belong to Types I and 11 as a general thing, while the sporadic cases are most frequently of Types III and IV. It would thus seem that infection with Types I and II depends to a large extent upon direct or indirect contact, while Types III and IV are apparently or largely due to decreased resistance on the part of the host to organisms usually harmless. It is in these last cases that such predisposing causes as chilling, exposure, fatigue, and trauma are of special importance.

As lobar pneumonia can only be regularly produced in monkeys by injection into the trachea and bronchi, it seems that infection at least in Types I and II must be air borne, while that from Types III and IV may be air borne, if derived from without. While natural immunity protects most of us, pneumonia cases should be treated as potentially contagious, and care taken to protect others from sputum and droplet infection. A pneumonia patient in a ward is much more dangerous than a case of tuberculosis.

As mentioned before, broncho-pneumonia is not a clinical entity and, as might be expected, its etiology is not uniform. It is not generally an independent disease, but is usually secondary to some other disease. Furthermore, it is not commonly produced by the bacterium of the primary disease, but is most frequently produced by one or more bacteria, which only get a foothold in the lung after the resistance of the patient has been lowered. Still there are epidemics of primary broncho-pneumonia due usually to the streptococcus, such as occurred in some of our cantonments in 1917, while a primary broncho-pneumonia is not at all uncommon in young children. As a secondary infection it may accompany bronchitis, and it often follows measles, whooping-cough, typhoid, diphtheria, and influenza. In diphtheria, tuberculosis, and in some epidemics of influenza, the broncho-pneumonia is due to the bacterium causing the primary disease, but in the majority of cases following influenza, and in those accompanying other specific infections such bacteria as the pneumococcus, streptococcus hemolyticus, or staphylococcus aureus are usually the causative agents. But many other organisms have been isolated in special cases of broncho-pneumonia.

We formerly thought that the broncho-pneumonias practically only occurred in infancy and old age, but our experience in the late in-

fluenza epidemic soon convinced us all that even the most robust young adults were subject to a fatal attack. And at the same period a more general use of the X-ray showed us that broncho-pneumonia was many times more frequent than was generally believed, and that in hospital practice at least "Bronchitis is rarer than broncho-pneumonia" (Nellis B. Foster), while others go so far as to say that a general bronchitis seldom occurs without areas of broncho-pneumonia. In the milder cases, there are few, if any, symptoms pointing to the presence of a pneumonia, and the patient usually recovers without a diagnosis and without serious results. On the other hand, we all recognize broncho-pneumonia as most serious for the weak and the aged, while the severe types, such as we met in the influenza epidemic, are to be feared by all.

As there are many causative factors in producing the broncho-pneumonias, so there are various types of the disease. Sometimes the symptoms are so trivial and indefinite that the presence of broncho-pneumonia can only be surmised, while other cases may be most dramatic. In contradistinction to lobar pneumonia the onset of broncho-pneumonia is usually insidious, its course and duration indefinite, and its termination by lysis. The fever, respiration, and leucocytosis are also lower than in lobar pneumonia, though these vary with the infecting organisms. The sputum may be merely mucopurulent, but may contain bright blood, being seldom rusty as in lobar pneumonia. The physical signs too may be very variable and indefinite. These may be merely a little patch of fine rales found to correspond with an increase in the symptoms, or perhaps only a local change in the whispered voice, which may be followed by dullness and broncho-vesicular breathing. These signs may remain in one place, or apparently shift around, while the areas of consolidation may persist long after the disappearance of fever.

We can only hope to diagnose all our pneumonia cases by constant watchfulness and care for, to quote Bloomfield, "there is no diagnostic syndrome specific of broncho-pneumonia. The physician must be familiar with the conditions under which the disease is likely to occur, and be on the watch. In any patient with bronchitis, acute or chronic, with any pulmonary disease, such as cyst or tumor, in acute infection, especially measles, influenza, scarlet fever, diphtheria, smallpox, or sepsis, in any chronic or wasting disease, in any old debilitated or bedridden patient, the possibility of broncho-pneumonia is ever present. It may develop insidiously without revealing symptoms or signs, but careful note of cough and sputum, and painstaking physical examination of the chest will usually save the physician from mistake."

Before closing this little paper, let me compare a few of the common forms of pneumonia, so as to bring out their points of difference. Terminal broncho-pneumonia in wasting diseases and in the aged gives few striking symptoms. There is usually some rise of temperature and a cough, though neither may be marked. On examination, moist rales, slight dullness, and diminished breathing are found in one or both lower lobes. But distinct broncho-pneumonia is found at autopsy. In contradistinction to this let us recall some of our cases of influenza pneumonia. A patient instead of improving has his temperature rise on the fifth or sixth day of his influenza. The cough increases, as does his respiration, while the face becomes flushed, or may be cyanotic. The physical signs are indefinite, and may only present a small area of fine rales with increased high pitched voice. Later the rales increase, are found on both sides, and dullness with areas of bronchial breathing may be found. The cyanosis increases out of proportion to the respiration, and the sputum contains bright blood. All this time there may be no leucocytosis and a low blood pressure. Though an autopsy on such a case also reveals broncho-pneumonia, could the symptoms be more absolutely different from those in the case of terminal pneumonia?

And on the other hand, how different is each from a typical case of lobar pneumonia, starting with a chill, a sharp pleuritic pain, cough with rusty sputum, rapid respiration and pulse, high fever and marked leucocytosis, running a comparatively fixed course, and terminating by crisis. And the physical signs in typical lobar pneumonia are as pronounced as they are indefinite in some of the cases of broncho-pneumonia. Would it be possible to find more different clinical pictures, for they practically have only one common symptom, cough, which likewise may be very slight in a terminal pneumonia?

Then the etiology may be different in all

these, lobar pneumonia being generally produced by the pneumococcus, the influenza pneumonia (as described) by the streptococcus hemolyticus, and the terminal pneumonia by various bacteria, possibly the staphylococcus aureus.

And yet we class them all as pneumonia. No wonder we have trouble with our diagnosis and prognosis, for we are evidently grouping under one heading a number of different maladies. Let us hope that some one may be able to make a practical differentiation which will allow us ordinary doctors to separate and treat these various infections in a more exact and scientific manner. Until this is done, our work on these cases must be unsatisfactory, and the hope of materially reducing the appalling mortality from the pneumonias must be left to the future.

Bank of Commerce Building.

DIVERTICULITIS OF THE COLON.

By CARRINGTON WILLIAMS, M. D., Richmond, Va.
Associate in Surgery, Medical College of Virginia.

Diverticula may be found in any part of the intestinal tract. Their occurrence in the esophagus and small intestine has been recognized for many years, but only in the last fifteen years has it become generally known that the large bowel is the most frequent site for this pouch-like structure. Beyond question, many cases have been overlooked either because they have given no definite symptoms or because the true pathology has gone unrecognized even at operation.

Diverticula of the colon are most frequently found in the sigmoid, but may occur at any point along the large bowel, including the appendix vermiformis and the rectum. The diverticulum is generally termed "true" when its wall contains all the elements of the bowel wall; it is "false" when the muscular layer is not present. The terms "congenital" and "acquired" have been applied respectively to "true" and "false" diverticula, but careful microscopic studies have made this classification untenable, and have indeed shown the division into "true" and "false" to be but different stages of the same process.

The diverticula may vary greatly in size. They may be discoverable only by miscroscopic examination, yet they may grow to be twelve inches in diameter. Perhaps the average size is that of a buck-shot. The appearance of the diverticula depends on the location and amount of inflammatory deposit. They may be tucked away along the mesocolic attachment, buried under a thick covering of fat, or pushed into an obese appendix epiploica. If they are numerous and not inflamed, the bowel is studded with teat-like projections. If inflamed, they may be buried in a hard mass of new-formed tissue. This variation in size and their ability to hide, account for the wide variation in the reported frequency of the condition; one pathologist reports one in one thousand autopsies, another thirty in one hundred. When small and not filled or inflamed, the wall of the diverticulum shows microscopically the structure of the large bowel; when much distended by fecal contents or distorted by infection, the mucous lining is flattened and the muscle much attenuated or even destroyed. There are, however, many reports of intervening stages of the presence of muscle which would indicate that a false is simply a true diverticulum partially destroyed. The cause of diverticula is not and probably never will be thoroughly established. Congenital origin has been much discussed and probably a congenital weakness must be admitted, yet there are factors which contribute more largely in their formation.

The anatomy of the colon is important; first, the longitudinal muscle arrangement into bands; second, the thick deposit of fat under the serous coat and into the appendices epiploica in obese individuals; and third, the perforation of the muscular coat by blood vessels. It is significant that diverticula of clinical importance are found most frequently in patients beyond middle life when all muscles of the body are weakened. They occur most frequently in obese individuals, and some claim while others deny that conditions which slow up the blood return from the colon, such as cirrhosis of the liver, predispose to diverticulum formation through the point of blood vessel perforation. The colon at times is greatly distended with slow moving fecal material and gas; the pressure which this would exert on a weak point with the added straining of the patient at stool, for constipation is often present, might well be a contributing cause and is certainly a factor, in increasing the size of the diverticula.

Having formed, the vast majority of diverticula cause no trouble. They may, however, become filled with dry, hard fecal mate-

rial and suddenly become acutely inflamed The picture then is not unlike the acute appendix. The inflammation may be mild and subside; it may be severe and perforate with resulting peritonitis or abscess formation, or it may so cut off the blood supply as to cause gangrene. In the acute stage, the diverticulum may adhere to some neighboring viscus and perforate into it. The most notable example of this is the bladder fistula thus formed. The fistula may connect with a loop of bowel. I once removed an appendix, the lumen of which was continuous with the lumen of the sigmoid through adherence at its tip; it is probably fair to assume that this appendix became fixed to a small acutely inflamed diverticulum.

The most important result of diverticulosis, however, is the subacute proliferative or chronic inflammation. This process is begun about the fecal-filled diverticulum and progresses slowly. It may be compared to the granuloma which forms around a foreign body, with the added infection of the usual bacteria present in the lower bowel. This deposit of inflammatory tissue may involve a considerable area of the gut, depending on the number of diverticula present, and may grow to considerable size. Grossly it appears either as a thickening of the gut or as a hard tumor mass. It is likely that the former has been at times passed up by the surgeon as an unimportant finding, and the latter has been resected as a malignant growth.

The symptoms of the acute infection are those of a left-sided acute appendicitis, subject to the same wide variation of symptoms as is the acute appendix. The other form gives a more chronic history. There have been digestive disorders of various kinds, pain usually a dull ache in the left lower abdomen, probably there have been one or more acute attacks, constipation is the rule, of increasing severity even to obstruction of the bowel. There is rarely blood in the stool, because the pathology is largely outside the mucous lining of the gut.

The most important physical findings are local tenderness and rigidity, and a palpable mass usually in the left lower abdomen. Sigmoidoscopic examination is of little or no value except to exclude carcinoma. The temperature and leucocyte count depend on the activity of the inflammation; in one having a palpable mass, there is usually a moderate elevation of both.

The diagnosis of the acute condition is rarely accurately made, the symptoms are of appendicitis on the left side, and if transposition of viscera is excluded, diverticulitis should at least be seriously considered. In the chronic form with a palpable mass, carcinoma is the most difficult disease to exclude. X-ray examination may reveal the diverticula and exclude cancer, but often this evidence is not conclusive. The well nourished patient, the absence of blood in the stools, and the negative sigmoidoscopic findings, are usually sufficient to exclude cancer.

The diverticulum with its fecolithic contents may become cut off from the bowel and become a free body in the peritoneal cavity. There are, however, more serious complications. The mass at times so encroaches on the lumen of the gut as to cause obstruction. As has been noted the inflamed diverticulum may form a fistula into a nearby viscus. The most frequent is the bladder fistula which is attended with severe cystitis and passage of gas and feces by urethra. The gravest of all, however, is the growth of cancer. It has been estimated that thirty per cent of cases of diverticulitis with mass formation, have cancer in addition to the inflammatory process.

Medical treatment, depending largely on colonic irrigation and prevention of stasis, is said to give good results in early mild cases. Manifestly in the acute, and in chronic cases with mass formation, surgery offers the only hope of success. The surgical problems are many and varied, and require the most careful judgment. In the acute cases excision and suture or drainage of an abscess, may be all that is necessary or all that can be done. Where there is a fistula, it should be closed by appropriate methods and then the colonic problem taken up. Where resection is to be done, a preliminary colostomy will make the operation safer, and by somewhat relieving the inflammatory process, will reduce the technical difficulties. Where it is possible to mobilize the affected area, the two-stage operation of Mikulicz offers a conservative method of cure. or it may be wise at one stage to resect and suture the gut. Long standing cases may have such extensive pathology as to be beyond surgical relief. This case belongs to this last unfortunate group:

XUM

Patient is a man 73 years of age, complaining of left abdominal pain, constipation and loss of weight and strength. He gives a history of numerous attacks of severe abdominal pain with fever, nausea and vomiting. There has been no constipation until recently. During the last two years he has lost weight and strength, has had a dull pain in left lower abdomen, usually relieved by movement of bowels which have gradually become very sluggish. Stools are small caliber, very dry, and have had considerable mucus but no blood. At times the pain has been quite severe and accompanied by fever and vomiting.

The patient was obviously severely ill. The physical examination was not interesting beyond the very evident loss of weight, and the abdomen. Here a mass was palpated in the left lower quadrant, the spleen easily felt, and there was marked tenderness and slight rigidity in both these regions. The laboratory examinations showed a moderate secondary anaemia, rather markedly diminished renal function, essentially normal blood chemistry and negative blood Wassermann. X-ray examination of the gastro-intestinal tract showed a very extensive diverticulosis involving the large bowel from the left side of the transverse colon to the rectum. Sixty-three diverticula were visualized.

The diagnosis was diverticulitis of the colon with inflammatory thickening causing partial obstruction to the bowel.

The patient refused to consider operation. He was advised to follow the palliative treatment outlined above. During the next two months his temperature ran from normal to 101 degrees, and his general condition grew less favorable. At the end of this time the abdomen was explored in one of the large Eastern Clinics, from which I had the following report: "Large mass was found in the upper left quadrant, which was not adherent to the diaphragm, but which was firmly attached to the lateral wall just beneath the costal margin. The lower pole of the spleen and the upper pole of the kidney seemed to be involved in this mass. The mass itself was a little larger than one's fist. The transverse colon was followed into this mass and the descending colon found to emerge from it. The mass was very firm and nodular, and suggested only an infiltrating carcinoma. It was quite obvious that nothing could be done surgically." Two months later he died.

This case, of course, is an extreme example of the results of diverticulitis and complicating cancer.

REFERENCES.

George, A. W. and Leonard, R. D., Med. Clin. of N. A., 2, 5, March, 1919.
Keefe, J. W., Boston M. & S., 176, 271, 1917.
Chute, A. L., Boston M. & S., 184, 118, 1921.
Mayo, W. J., Wilson & Griffin, Surg., Gyn., Obs., 5, 8, 1907.
Erdmann, J. F., Surg., Gyn., Obs., 26, 207, 1918.
Roberts, Dudley, Surg., Gyn., Obs., 26, 211, 1918.
Black, W. T., Surg., Gyn., Obs., 28, 473, 1919.
Willey, C. H., Brit. Med. Jour., Vol. I., 1920, 631.
Bryan, R. C., Ann., Surg., 63, 352, 1916.
Giffin, H. Z., Jour. A. M. A., 59, 864, 1912.
Mayo, W. J., Jour. A. M. A., 69, 781, 1917.
Gant, S. G., Jour. A. M. A., 77, 1415, 1921.
Powers, Chas. A., Trans. Amer. Surg. Asso., 1912.
O'Callaghan, R., Surg., Gyn., Obs., 33, 679, 1921.
Ranken, F. W. & Judd, E. S., Surg., Gyn., Obs., 35, 510, 1922.
Mayo, W. J., Va. Med. Monthly, 48, 428, 1921.
Hartwell, J. A. & Cecil, R. L., Amer. Jour. Med. Sc., 140, 174, 1910.
Telling, W. H. M. & Gruner, O. C., Brit. Jour. Surg., 4, 1916, 468.

400 *East Franklin Street.*

TORSION OF AN APPENDIX EPIPLOICA SIMULATING AN ATTACK OF ACUTE APPENDICITIS.

By FRANK HELVESTINE, Jr., M. D., University, Va. Department of Surgery, University of Virginia Medical School.

The appendices epiploicae were first described in 1543 by Andre Vesalius. The average anatomical text book of the present day pays very little attention to these structures and the descriptions are unsatisfactory. The following description is taken from Quain's Anatomy:[7]

"The serous coat (of the large intestine) is for the most part similar to that of the small intestine except that, along the colon, it is prolonged into numerous projections, enclosing fat, which are called appendices epiploicae. These appendices vary greatly in size, and in stout individuals may be 4 cm. to 5 cm. long, give off a number of secondary processes and be loaded with fat. On the vermiform appendix, the serous membrane is closely adherent to the subjacent muscular fibers, but two rows of appendices epiploicae, one on each side, project from its mesentery close to the appendix. Occasionally some rudimentary appendices epiploicae are found on the free surface of the vermiform appendix. The epiploic appendages are found along the whole of the colon and are

usually best marked on the transverse and pelvic colon. They are seldom conspicuous on the cecum, and, on the ascending and descending colon are mainly attached to the median and lateral surfaces, while on the transverse colon they spring almost entirely from its posterior surface, being attached between the two longitudinal muscular bands termed taenia mesocolica and taenia libera, and when well developed also from the adjacent part of the transverse colon. On the pelvic colon they often form two somewhat irregular rows situated on each side of the bowel; they gradually become smaller in size and fewer in number towards the end of the pelvic colon, and they are absent from the rectum."

Practically nothing is known of the physiology of the appendices epiploicae. It has been suggested that these structures serve the same protective purpose as the omentum, that they serve as a place of storage for fat; and Robinson[9] has concluded from his experiments that the appendices epiploicae are concerned with the movements of fluid in the large bowel.

Pathological changes of the appendices epiploicae are rare. Hunt[4] in 1919 collected forty-two cases from the literature and added eleven cases from the Mayo Clinic in which one or more of these structures showed a diseased condition. From a review of the cases reported in the literature it appears that the most frequent cause of pathological change in the epiploic appendages is attendant upon some mechanical interference of the blood supply of these bodies. Torsion of the pedicle is the principal etiological factor, but a number of cases have been reported in which the appendices became strangulated in a hernia sac.

Interference with the circulation may be entire or partial. Fat necrosis is the principal degenerative change. Subperitoneal hemorrhagic effusions and gangrene often characterize the process. At times only small ecchymotic areas with dark discoloration of the appendices epiploicae are seen. There may be an extensive inflammatory reaction present, and it is thought that infection following torsion often takes place by direct bacterial invasion from the lumen of the bowel.

In a series of fifty-three cases (forty-two from the literature and eleven cases reported by Hunt) the location of the diseased appendices epiploicae was stated in twenty-nine cases. The pathology occurred on the cecum in six cases, on the transverse colon in two cases, and on the sigmoid colon in twenty-one cases. Torsion within the abdominal cavity has been reported in sixteen cases. and in ten cases torsion occurred within hernial sacs. Intrahernial strangulation was reported in fourteen cases. In twelve cases were found in the free peritoneal cavity foreign bodies which were assumed to be derived from appendices epiploicae which had become separated from the bowel by torsion of their pedicle. Hunt reported a case of intestinal obstruction in which the obstruction was caused by a band formed by an appendix epiploica becoming adherent across the sigmoid.

Three cases of the series of sixteen cases of intra-abdominal torsion were diagnosed as acute appendicitis; two cases were diagnosed as intestinal obstruction; appendicitis and cholecystitis was the diagnosis in two cases; two cases were not diagnosed before operation, and in two cases the condition was an accidental finding at operation. The diagnosis of gall-stones, ovarian disease, tumor of the sigmoid and diverticulitis was made in one case each, respectively. All of the cases in which torsion or incarceration occurred within hernial sacs were diagnosed as incarcerated or strangulated herniae. In the cases of foreign body formation there were usually no symptoms and the condition was found accidentally.

Case Report

Clinical Note: The patient, a white woman, 36 years of age, was admitted to the University of Virginia Hospital, July 4, 1923, complaining of pain in the right lower quadrant. During the past three years the patient had had an occasional slight pain in this region. These attacks were very transitory and aside from the pain there were no other symptoms. The present attack started about twelve hours prior to admission. The patient was awakened during the night with rather sharp pain in the lower abdomen which was most marked in the right lower quadrant. Shortly after awakening she became nauseated and vomited. On admession the patient complained only of pain and tenderness in the appendix region. Examination showed no distention of the abdomen, slight regidity and marked tenderness in the right lower quadrant. Rectal temperature was 100° F., leukocytes 6,200, and examination of the urine negative. With a tentative

diagnosis of acute appendicitis immediate operation was advised.

Operation: (Dr. S. H. Watts). The abdominal cavity was opened through a McBurney incision. The appendix vermiformis showed no evidence of acute inflammation but was bound down by adhesions and converted into a fibrous cord near its tip. Removal was quite difficult and had to be done in a retrograde manner. Attached to the median surface of the cecum about 6 cm. above the ileo-cecal junction there was found a small dark purple gangrenous body. This body measured 2 cm. in length, 1 cm. in breadth and about 3 mm. in thickness. In shape it resembled very much a butter bean. It was attached to the cecum by a short twisted pedicle. This gangrenous appendix epiploica was the only lesion that could be found to account for the patient's acute symptoms.

The following is a brief summary of eight cases of torsion of an appendix epiploica simulating appendicitis, appearing in the literature:

Briggs[1] reports the case of a man 35 years of age, without a previous history of any abdominal complaint, who had a sudden attack of pain in the right lower quadrant, which gradually subsided but increased later in the day. On examination the patient's pulse and temperature were normal. A tender tumor was palpable in the appendix region. On the fifth day after the onset the temperature was 100° F. At operation there presented in the abdominal incision a tumor one and one-half inches long and one inch wide, having the appearance of a hematoma with a peritoneal envelope. It was adherent to the cecum by a narrow twisted pedicle. The appendix vermiformis although normal was removed. The tumor was an appendix epiploica with a twisted pedicle.

Zoeppritz[10] records the case of a man 20 years of age who complained of burning pains in the right epigastrium extending toward the midline. Before examination the patient had had acute epigastric pain and tenderness over McBurney's point. The diagnosis of acute appendicitis or cholecystitis was made. At operation the appendix vermiformis appeared in the incision and showed no pathology. Upon lengthening the incision a brownish-bluish-red mass, the size of a plum, appeared in the wound. From the center of this mass there extended a slightly thickened band of omentum. The removed tumor was an appendix epiploica, of the beginning of the transverse colon, twisted 180.° When the omentum was loosened there was no tendency to untwist.

Pochhammer[6] reports the case of a man, 34 years of age, who had had during the past 18 years repeated attacks of pain in the right lower quadrant which had been diagnosed appendicitis. Just prior to admission to the hospital the patient had had a similar attack of pain without nausea or vomiting. With a diagnosis of appendicitis an operation was performed. There was found in the pelvis a fatty tumor about the size of a hen's egg, bluish-black in color, with its central portion infiltrated with blood. It was evidently an appendix epiploica which had become enlarged by fatty infiltration and the pedicle had become twisted. The appendix vermiformis, although it showed no pathology, was removed.

Kimpton[5] describes the case of an obese man, 42 years of age, who complained of acute pain in the right lower quadrant, accompanied by nausea. On examination there was tenderness and rigidity in the appendix region. With a diagnosis of acute appendicitis operation was undertaken. In the region of the appendix vermiformis there was found a black appendage of fat, which was a twisted appendix epiploica. This appendix epiploica was hemorrhagic and necrotic. It was removed along with the normal appendix vermiformis.

Harrigan[2] reports the case of a man 29 years of age, who two days before examination, had sudden severe pains in the right lower quadrant, which did not radiate. In spite of the use of opiates this pain became progressively worse. Examination was negative except for some slight rigidity and tenderness over McBurney's point. A diagnosis of acute appendicitis was made. At operation the vermiform appendix was found not to be inflamed and abdominal exploration was negative except that on the sigmoid there was an appendix epiploica with a twisted pedicle, which presented evidence of acute inflammation. The appendix epiploica and the appendix vermiformis were removed with complete recovery of the patient.

Hunt[4] records the case of a woman, 29 years of age, who gave a history of having had moderate pain in the right lower quadrant for

a period of seven years. The pain was usually of only a few minutes' duration and never severe enough to cause the patient to stop work. At times there would be a dull ache for a day. During the two months preceding examination there had been moderate digestive disturbances but no attacks. A diagnosis of chronic appendicitis and cholecystitis was made. At operation a chronic adherent appendix and an appendix epiploica, the size of a small pecan, with a twisted pedicle, were removed.

Hartley[3] describes the case of a woman, 35 years of age, who two days prior to admission, began to have pain in the right lower quadrant of the abdomen, which was aggravated by exercise. Tenderness was also noted, by the patient, in this region. Pain persisted and grew steadily worse. There were no gastric symptoms. The patient gave a history of having had slight transient attacks of pain in the right lower quadrant over a period of the past ten months. On examination there was rigidity and tenderness in the right lower quadrant of the abdomen. Temperature 99° F., and pulse 88. With a tentative diagnosis of acute appendicitis, immediate operation was performed. The vermiform appendix was found to be normal and was removed routinely. Further examination revealed the presence of a dark purple colored appendix epiploica attached by a narrow pedicle to the anterior surface of the ascending colon, some distance above the ileo-cecal junction. This body was discoid in shape and its pedicle was twisted fully twice. It was removed. The patient made an uneventful recovery and has had no further trouble.

Robertson[8] reports the case of a young man who gave the history of just recovering from a second attack of appendicitis. There had been four weeks between these two attacks. On each occasion the onset had been sudden with severe pain in the right iliac fossa accompanied by nausea and vomiting. For some weeks the patient had suffered from dyspepsia with much flatulence. On examination, there was a tender spot in the appendix region, and a small hard lump, resembling an inflamed appendix rolled in omentum, could be palpated; abdominal rigidity was slight. At operation the vermiform appendix was found to be normal. About three inches distal to the cecal extremity of the appendix upon the posterior external aspect of the cecum, there was exposed a small plum colored lump, sessile upon the peritoneal coat of the gut. The tumor showed the structure of an appendix epiploica with an inflammatory reaction and recent hemorrhage.

Comment.

Torsion of appendices epiploicae are probably not so rare as the few reports in the literature would indicate. The majority of abdominal operations are performed for appendicitis and the usual operation is done through a small McBurney incision, which permits of little exploration of the abdominal cavity. In a certain number of cases which are operated upon with a diagnosis of appendicitis, slight or no pathological changes are found in the appendix, certainly not sufficient pathology to account for the symptoms of which the patients complain. Yet the appendix is removed and the patients have no further trouble. These cases may very easily have as the cause of the symptoms an appendix epiploica with a twisted pedicle. With gangrene of these bodies, pain subsides and either absorption or calcification results.

In abdominal surgery it is well to keep the appendices epiploicae and their pathology in mind, and, when no gross changes can be demonstrated in the suspected viscera, it is well to explore the colon for disease of these fatty bodies, and not relegate these cases to the class in which there is nothing abnormal found.

References.

1. Briggs, W. A., 1908. Amer. Jour. Med. Sci. CXXXV, 364-870.
2. Harrigan, A. H., 1917. Ann. Surg. LXVI, 467-478.
3. Hartley, J. N. J., 1922. Edinburg Med. Jour. XXVIII, 111.
4. Hunt, V. C., 1919. Ann. Surg. LXIX, 31.
5. Kimpton, A. G., 1915. Boston Med. & Surg. Jour. CLXXII, 752.
6. Pochhammer, C., 1910. Charite Ann., Berl. XXXIV, S494-506.
7. Quain's Anatomy, Vol. II, pt. 2, p. 123.
8. Robertson, G., 1923. Brit. Med. Jour., I, 325.
9. Robinson (cited by Harrigan).
10. Zoeppritz, H., 1908. Deutsch. Ztschr. f. Chir., XCVIII, 141-148.

XUM

INSULIN IN COUNTRY PRACTICE.*

By JAMES C. DOUGHTY, M. D., Onancock, Va.

The doctor in general country practice is occasionally called upon to treat diabetes mellitus or its more important complications, acidosis, gangrene and coma. At times, the extreme illness of the patient or an economic reason prevents transferring the case to some hospital with a metabolism department including laboratory technician, dietitian, and the care of an internist versed in insulin administration.

Medical literature has brought to our divided attention well written papers on the treatment of diabetes with insulin, most of them by highly specialized authors, and necessarily in technical terminology. Diabetes requires some technical knowledge; and Eli Lilly & Co., who are accorded the privilege of the large scale production under the trade name "Iletin," have compiled a most concise treatise on its use.

This brief paper is brought to your attention with the hope that some of the apparent mysteries, attending the modern treatment of one of the most miserable human ills, may be solved.

In passing, let us pay tribute to the research workers who have, by a series of brilliant physiologic investigations carried out in the Toronto Laboratories, made an epoch in the history of medicine.

Insulin, the active principle derived from the islands of Langerhans of the pancreas, was discovered by Dr. Frederick Grant Banting, of Toronto, Ontario, and Mr. Charles H. Best, of Maine, who was at that time a student in the department of physiologic chemistry at The University of Toronto. These men were working in the laboratory of Professor J. J. R. Macleod, and finally, after considerable difficulty, Drs. Banting and Collip and Mr. Best produced a preparation sufficiently pure for therapeutic use. Immediately the aid of such renowned clinicians as Campbell, Fletcher, Fitz, Geyelin, Wilder, Williams, Woodyatt, Allen and Joslin, was sought; and these, after sufficient experience with insulin, made prolonged reports.

Iletin (Insulin Lilly) is supplied at present in aqueous solution for hypodermic use only. Given orally it is ineffective. The solution is quite stable and may be preserved at room temperature. No appreciable deterioration has been shown during a period of several months. It is now of uniform composition and since October has been increased 40 per cent in strength. One unit of iletin as supplied by Lilly & Co., previous to October, 1923, was defined as one-third the minimum amount of the extract which on subcutaneous injection into starved 2 kilogram rabbits would lower the blood sugar to the convulsive level, 45 milligrams in 100 c.c., within 2 to 5 hours. The new product bears the "U" label. One unit of iletin usually enables a severe case of diabetes to utilize from 1 to 2 gms. of additional glucose. "The basis for this work was the appreciation by Banting that, upon ligation of the pancreatic ducts, there develop degenerative changes in the acini of the pancreas but not in the islet tissue. Further experiments proved that trypsinogen and its derivatives were antagonistic to the internal secretion of the pancreas; and the failures of other investigators were thus accounted for. The first pancreatic extract used by these investigators was obtained from the atrophied pancreas of the dog after the pancreatic ducts had been ligated for a period of ten weeks. The atrophied pancreas immediately upon removal was extracted in ice-cold Ringer's solution and then purified. On injecting this extract into diabetic dogs it was found that the percentage of sugar in the blood and in the urine was invariably reduced . . ."

"Next, taking advantage of an observation that no enzymes were found in the foetal calf pancreas until after the fifth month, the pancreas from foetal calves was extracted in Ringer's solution and, after purification, injected into diabetic dogs, causing definite reduction in blood and urinary sugar. Finally, a potent extract of islet tissue was obtained from adult beeves' pancreas by abstracting with 95 per cent alcohol immediately after death of the animal, soluble and protein free."*

It is interesting to know that the Nobel Prize in Medicine for 1922 has been awarded to Drs. Banting and Macleod who in turn have shared equally with their colleagues, Dr. Collip, of Alberta University, and Dr. Best, who has recently received the degree, Doctor of Medicine. Each of these men received 10,000 dollars. The Canadian Government has voted

*Read at meeting of Accomac County Medical Society in Onley, December 10, 1923.

*Insulin Treatment of Diabetes, J. D. Willis, M. D., Roanoke, Va., Virginia Medical Monthly, Oct., 1923.

Dr. Banting an annuity of 7,500 dollars to enable him to proceed with his experiments. The University of Toronto has granted him a permanent professorship carrying an additional income of 6,000 dollars. "Even so," says the *Literary Digest*, "he has given the world at the age of thirty much more than it is ever likely to pay him for." He is a confirmed bachelor, highly artistic, being a painter, and judging from the canvasses hanging on the walls of his office, Cathedral doorways are his favorite subjects. He was born on an Ontario farm and reared there, and is further a product of Canadian schools and university. His aged mother has lived to share his glories.

Insulin is not a cure for diabetes. Some clinicians† have expressed a belief in its ability to aid in restoring the lost function of the pancreatic islands, providing a pathologic change has not destroyed the islet tissue. The accepted methods of dietary management of diabetes have not been changed materially by the advent of insulin. A knowledge of proper diet in this disease is still essential to its successful treatment; but, it is no longer necessary to subject a patient to prolonged periods of under-nutrition to render the urine sugar free. The body tissues of a patient at rest need a certain minimum amount of fuel to supply heat and energy; this amount expressed in terms of heat units, calories, varies with the age, sex, height and weight of the individual, and is called the basal caloric requirement. This may be determined with considerable accuracy by means of charts based on the DuBois' calculations; or for practical purposes it may be estimated that an adult with average nutrition will utilize in twenty-four hours, 25 to 30 calories per kilogram of body weight, a kilogram being 2.2 lbs. This necessary fuel must be obtained from the proteins, fats and carbohydrates in the food, or from the body tissues. One gram of protein or carbohydrate will yield 4 calories and one gram of fat will yield 9 calories. Fat burns in the flame of carbohydrate combustion; therefore fats and carbohydrates must be balanced in the diet or a ketosis results with acetone bodies in the blood and a resultant acidosis leading on to coma and death. In the human economy a certain amount of protein is absolutely essential for growth and to replace nitrogenous waste. This amount is usually estimated to be from ¾ to 1 gram for each kilogram of body weight in an adult, and from 1 to 2.5 grams in a child. Diabetics who are not obese may safely take from 2 to 2.5 grams of fat per kilogram body weight. The difference between the total calories required and the number supplied by the protein and fat on the above basis may be supplied as carbohydrate.‡ For example, a 50 kilogram man will require as a basal diet 1,500 calories. 1 gm. protein × 50 × 4 = 200 cal. 2½ gms. fat × 50 × 9 = 1125 cal. Then 1,500—(1,125 + 200) = 175 calories of carbohydrate which can be supplied by 44 gms., thus affording a well balanced ration of C. 44, P. 50, F. 125. There must be a definite ratio between the fatty-acid and the glucose. In Toronto, the Department of Medicine has adopted a formula* for computing diets which is based on two-thirds gram of protein per kilogram of body weight and carbohydrate and fat to yield a fatty-acid—glucose ration of approximately 2—1. The following formula may be used.

Method for Estimating Diabetic Diets

Surface Area Chart (Du Bois)

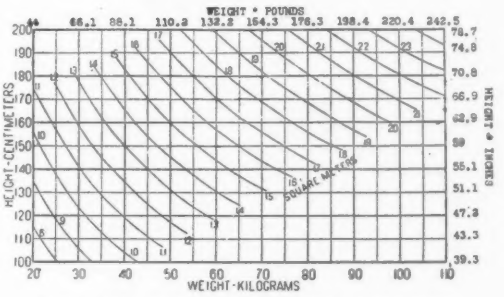

Chart for determining surface area in man in square metres.
Example: Weight 154.3 lb., Height 70.8 in. = 1.88 sq. m.

Caloric Requirement per square metre of body surface (Aub-Du Bois)

AGE	MALES		FEMALES	
Years	Cal. per Hour	Cal. per Day	Cal. per Hour	Cal. per Day
10-12	51.5	1236	50	1200
12-14	50	1200	46.5	1116
14-16	46	1104	43	1032
16-18	43	1032	40	960
18-20	41	984	38	912
20-30	39.5	948	37	888
30-40	39.5	948	36.5	876
40-50	38.5	924	36	864
50-60	37.5	900	35	840
60-70	36.5	876	34	816

Formulae for calculating food requirement in grams from Caloric Requirement (M) (W. R. Campbell)

$P = 2/3$ gm. per Kg. body weight.

$$C = \frac{M - 10P}{30}$$

$$F = \frac{M}{10} - \frac{P}{2}$$

Dept. of Medicine, University of Toronto

Example—Given a patient, male, 35 years of age, 66.9 inches tall, weight 65 kilograms. Where the lines, kilogram and height, cross

†Drs. A. McPhedran and F. G. Banting. J. A. M. A., June 9, 1923. P. 1726.
Stengall. Virginia Medical Monthly, Oct., 1923. Page 462.
Allen, Prevention of Progressiveness. J. A. M. A. Oct. 20, 1923. P. 1334.

‡Iletin Insulin, Lilly, Handbook, Revised, October 15, 1923.
*Campbell, Canadian Medical Association Journal, July, 1923.

XUM

on the Surface Area Chart, find the nearest square meter curved line and follow downward to reading; in this instance it is 1.75 sq. meters. Multiply 1.75 sq. meters by number of calories required per day for male 35 years of age; in this instance 948. Then 1,659 calories is the "Basal Maintenance Diet." Supplying the figures in the formulae of W. R. Campbell, we have—

$$P = \frac{2}{3} \text{ gram per kilo. body wt.....44 grams.}$$

$$C = \frac{M - 10\,P}{30} \text{ or } 1{,}659 - 470 \text{ divided by } 30 \text{.....} 41 \text{ grams.}$$

$$F = \frac{M}{10} - \frac{P}{2} \text{ or } 1{,}659 \text{ divided by } 10 \text{ minus } 44 \text{ divided by } 2 \text{.....} 144 \text{ grams.}$$

"A maintenance diet is one on which the individual holds weight, an insufficient diet is one on which he loses weight, and a surplus diet is one on which he gains weight. There need be nothing abstruse in these reckonings."†

Diabetic Dietary‡

	Weight of Portion, Gm.	Protein	Fat	Carbohydrate
A. Protein equivalents (6 gm. each):				
Lean meat, poultry, cooked	22	6	3	0
Roast, medium fat	22	6	6	0
Fish, lean (cod, haddock, etc.)	30	6	0	0
fat (salmon, shad, etc.)	30	6	3	0
Oysters, six average	--	6	1	3
Ham, boiled, sliced	30	6	7	0
Bacon	36	6	18	0
Pork sausage	30	6	10	0
Beef soup (not greasy)	150	6	1	1.5
Egg, one	60	6	6	0
Egg white, two	--	6	0	0
yolk, two	--	6	12	0
Cheese, American	20	6	7	0
cottage	30	6	0	1
Casein flour muffin (Joslin) one	--	6	6	0
Calf's foot jelly (with saccharin)	45	6	0	0
Milk, three-fifths glass	150	6	6	7
Almonds, walnuts	30	6	18	5
Brazil nuts	35	6	24	2
Peanuts	25	6	9	5
Pecans	45	6	31	6
B. Carbohydrate equivalent (5 gm. each): Asparagus, cabbage, celery, chard, cauliflower, cucumber, eggplant, grapefruit, greens, leeks, lettuce, okra, radishes, rhubarb, stringbeans, spinach, sprouts, tomato	150	2	0	5
Beets, carrots, mushrooms, onions, squash, turnips	75	1	0	5
Canned lima beans, green peas, parsnips	35	1	0	5
Green lima beans, green corn	25	1	0	5
Orange, one-half, small	75	0	0	5
Lemon juice	50	0	0	5
Blackberries, cranberries, muskmelon, peach, pineapple, strawberries	75	0	0	5
Alligator pear	75	1	15	5
Apricots, cherries, huckleberries, pear, raspberries	30	0	0	5
Apple, banana, grapes, plums, prunes	25	0	0	5
Oatmeal, boiled	45	1	0	5
dry	8	1	0	5
Wheat cereal porridge	30	1	0	5
Macaroni, hominy, boiled, potato, baked, boiled, rice, boiled	25	0.5	0	5
Baked beans, canned	25	2	0.5	5
Bread	9	1	0	5
Cracker	7	0.5	0	5
Olives, green	60	0.5	10	5
Cream, 20 per cent.	150	5	30	5
40 per cent.	150	5	60	5
Milk, one-half glass	120	4	5	5
Wheat flour, 75 per cent. carbohydrate.				
Molasses, 70 per cent. carbohydrate.				
Sugar, 100 per cent carbohydrate.				
C. Portions by which fat may easily be added:				
Butter, 85 per cent. fat (3 pats)	30	0	25	0
Olive oil, lard, etc., 95 to 100 per cent. fat (1 level tablespoonful)	15	0	15	0
Mayonnaise, home-made (1 level tablespoonful)	15	0	15	0
Bacon, cooked	36	6	18	0
Cream, 20 per cent. (1 level tablespoonful)	15	0.5	12	0.5
Cream, 40 per cent. (1 level tablespoonful)	15	0.5	12	0.5
Alligator pear	100	2	20	7
Nuts, olives, etc. (See above).				
D. Miscellaneous (to be added at the physician's discretion):				
These articles may be added to the dietary without allowing their food value: coffee, tea, washed bran, agar-agar, cellulose flour, saccharin, liquid petrolatum (instead of lard), etc. To obtain the total number of calories multiply the total grams of protein by 4, of fat by 9, and of carbohydrate by 4, and add the results. The average daily requirement is 10 to 15 calories per pound (25 to 35 per kilogram).				

The diabetic diet should contain foods rich in vitamins. Think in terms of proteins, fats, carbohydrates, and minerals. Compute the diet in such terms that bread made of whole wheat flour, and whole corn meal can be included; also fruits, fruit-juices, green vegetables, growing plants, eggs, milk, white potato baked in skin, and other base forming foods.

†The Treatment of Diabetes With Insulin. Allen, J. A. M. A., Oct. 20, 1923.

‡Protein and Carbohydrate Equivalents in the Diabetic Dietary. E. M. Ewing, J. A. M. A., Jan. 29, 1921.

In diabetes,* and all infections of the organs of digestion, the tissues need nitrogen, phosphorus, calcium, potassium, iodin, magnesium, and iron; and, in the treatment of the obstinate constipation that often attends non-absorbable food elements are necessary. We should encourage patients to forget that sweets exist; even saccharin is to be omitted; it is a coal-tar product and is of doubtful value. Honey, moderately, may satisfy the craving for sweets; but the status of honey differs in the opinions of different writers. Newburgh and Marsh, and Maignon of Paris, advocate diets with high fat value; but the majority who treat diabetes prefer to follow the low fat regimen and feel on the safe side.

McCollum's formula of the perfect daily diet includes one raw fruit, one uncooked vegetable, two green vegetables, and one quart of milk a day, "to which should be added enough bread, butter and meat to meet the nutritional needs of the body. This diet, if carried out by the American people, would result in an enormous decrease in diabetics, along with a lessened number of cases of intestinal infections."*

Americans are an intoxicated race from acid-forming foods.

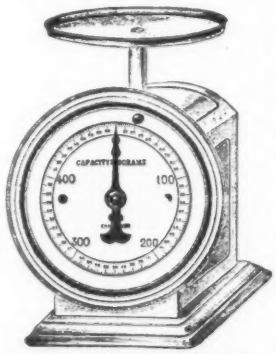

Figure 1—CHATILLON SCALE. These scales are finished in White Enamel with decorations. Dial is silvered finish on which the graduations and numerals appear in black. Capacity 500x2 gr.

The Chatillon Scale† (Fig. 1) with the rotary dial is the most convenient for daily use of the patient. It is attractively gotten up, is enameled white and presents a good appearance beside the plate at table.

The remarkable lowering of blood sugar by insulin makes it necessary that extreme caution be taken in its administration. It is best given fifteen to thirty minutes before a meal, either once, twice or three times daily, according to the severity of the disease. Frequent blood sugar estimations must be made in order to intelligently control the dosage. There is great danger in reducing the blood sugar below the low normal, 80 milligrams in 100 c.c. To collect a blood sugar specimen use the ordinary intravenous technic, be careful to let needle cool, and use an intravenous needle with a good size lumen. Put into a clean, preferably sterile, 4 inch test-tube, 1 c.c. of a saturated solution of potassium oxalate; to this add 4 c.c. of blood; cork test-tube, agitate, seal, label, pack in mailing case and mail, first-class, to the nearest laboratory doing blood chemistry. The laboratory technician will mail the report promptly; and the findings may be expressed in decimal fractions. For instance, normal blood sugar runs from 0.08 to 0.10. For convenience you may think in terms of per cent, but most writers prefer to express blood findings as so many milligrams in 100 c.c. of blood; therefore, 8 per cent or ten per cent is read 80 milligrams in 100 c.c. of blood or 100 milligrams in 100 c.c. of blood. Collect specimen before patient's breakfast.

"The extent to which the blood sugar can be raised in the diabetic person varies somewhat with different individuals, but it may be accepted that the maximum concentration which can be present in the blood without the occurrence of glycosuria is 0.18, 180 milligrams in 100 c.c. In the normal individual sugar will not appear in the urine by feeding with an excess of glucose."

"The maximum value of 0.18 is known as the renal threshold value for sugar and represents the concentration below which no sugar is excreted with the urine. One may infrequently encounter cases presenting a low renal threshold and this condition is known as renal glycosuria."

"From what has been said it is evident that when glycosuria occurs in diabetes the blood sugar must be more than 0.18. When it goes to a slightly lower level, then the glycosuria at once ceases. In some diabetic patients, however, and more especially in elderly individuals, the renal threshold value for sugar may be considerably raised so that even 0.3, 300 mgm. in 100 c.c., or more sugar, may be present in the blood without glycosuria. Whenever the blood sugar goes as low as 0.07, 70 mgm. in 100 c. c., definite symptoms of hypoglycemia may appear, and should the blood sugar reach as low as 0.03, 30 mgm. in 100 c.c., death will occur."‡

*Seale Harris, Virginia Medical Monthly, January, 1924. Page 677.

†John C. Chatillon & Sons, New York City.

‡Owens—Insulin. United States Naval Medical Bulletin, Feb., 1924.

The outward manifestations of lowered blood sugar below normal, or hypoglycemia, are weakness, sweating, nervousness, restlessness, inward trembling, pallor or flushing of the face, increased pulse rate (of diagnostic value in children), anxiety, vertigo, aphasia, delirium, confusion, convulsions, collapse, low blood sugar, low temperature, unconsciousness and death.

The antidote is carbohydrate given in some form and in the early stages it makes little difference what kind of carbohydrate is given. At the Toronto Clinic patients carry Quaker molasses candy in their pockets. Usually, 10 gms. of glucose, corn syrup, in 50 c.c. of orange juice by mouth is preferred. Sometimes it is necessary to repeat this dose in fifteen minutes. In case of unconsciousness, glucose diluted with water may be administered by lavage tube; adrenalin chloride 5—10—or 15 minims hypodermically, and as a last resort, dextrose solution 50 per cent sterile must be given intravenously.

A few factors involved in the production of hypoglycemia are increase of natural tolerance of a diabetic under insulin treatment; summation of insulin when doses are maximal and given too near together in point of time; administration of insulin too long before a meal; failure of food absorption, as for example, vomiting, diarrhoea and delayed digestion. Finally, exercise which may increase glucose utilization.

Treatment of Acidosis, Gangrene and Coma.

Allen, in a remarkably able paper* on diabetes read before the June 1923, session of The American Medical Association in San Francisco, states that in any case of existing or impending coma he takes a blood sample and injects 25 units of insulin into the vein before the needle is withdrawn. An additional 25 or 50 units is immediately injected subcutaneously. Further injections are then given subcutaneously every one, two or three hours, according to clinical and laboratory indications. The doses should be heroic. Less than 100 units for the first day is seldom advisable in any dangerous coma case. No food is given except carbohydrate. Fruit drinks are most convenient for supplying fluid, and additions of glucose or sometimes starch are allowed more liberally than before, so as to make a total of from 100 to 200 gms. of carbohydrate in the first twenty-four hours. No matter what the hyperglycemia in the beginning, push this glucose supply, because it increases glucose combustion with a given insulin supply, and thus aids in getting rid of acetone; also it furnishes a safeguard against hypoglycemia with high insulin dosage.

Further, Allen says: "We have observed benefit from moderate doses of sodium bicarbonate, perhaps from 10 to 40 gms. in twenty-four hours; given by mouth, if possible, or by rectum, vein or hypodermoclysis if there is persistent vomiting. Guard against alkalosis which may result from the rapid clearing up of acetone bodies in the blood."

"Push fluids—plain or carbonated water, soup, coffee, saline solution by rectum—in some manner 4 liters in twenty-four hours. Catharsis, gastric lavage, bed rest, warmth, cardiac stimulation and other measures are used as indicated, but are of minor importance."

"Statistical reports are governed largely by the standard for distinguishing coma from precoma." Allen's published series comprising 9 coma cases, show 4 recoveries and 5 deaths. In conclusion, he says, "On the whole, the benefits of insulin in coma and precoma cases are miraculous."

For the diagnosis of diabetic coma one would do well to read the splendid paper† by Howard F. Root, M. D., Boston.

Local Infections—"Local abscesses, middle ear and mastoid infections, and gangrene of the feet have terminated favorably, except an occasional death from gangrene of both feet with septicemia. Superficial gangrene can be healed without operation; but involvement of bones and tendons requires amputation, usually. The powerful control of sugar and acetone by insulin hurries healing."

I do not think that we as general practitioners in the country, without adequate laboratory facilities and competent nursing, should attempt to treat with insulin all cases of diabetes mellitus that come under our care. Many authorities* on diabetes have stated that a patient who becomes sugar free when receiving a diet calculated according to his basal requirement is not at present considered a sufficiently severe case for insulin treatment. Insulin dosage needs supervision and limitation; but, its use can be taught the general practi-

*Journal A. M. A. Oct. 20, 1923.

† Journal A. M. A. Dec. 1, 1923. Page 1847.

*Drs. A. McPhedran and F. G. Banting, Toronto. J. A. M. A. June 9, 1923.

tioner.† Given the case with coma, however, isolated in our rural sections, the insulin should be taken to the patient rather than the patient to the insulin.‡ The proper handling of a case is tedious. After computing the diet one must be prepared to remain with the patient from two to three hours each day during the time that tolerance is being established. We can certainly keep on hand an emergency supply of iletin (Insulin Lilly) and familiarize ourselves with the technic that takes longer to get than Dr. Joslin's allotted two or three hours.§ One can gain the knowledge necessary for diabetes by studying the medical journals. Whenever an opportunity presents, attend a clinic; but, if you are too busy to get away, carry some good paper on insulin as a hand book. Start your case on the smallest possible dose, watch the urine, take an occassional blood sugar and you will be gratified with the results. Thus we shall soon be in a position to meet acidosis and coma as we now meet diphtheria and tetanus.

In closing, one case is brought to your attention, because it was fraught with so many seeming impossibilities, a colored patient who lives in a two room cabin five miles from my office. Her only nurse was a daughter thirteen years old; yet, this child was taught to weigh food on a scale as shown in Fig. 1, the menus reckoned in calories by the physician. She soon learned to apprehend hypoglycemia, give the antidote, do a qualitative urinalysis, test for diacetic acid, collect and measure twenty-four-hour specimens, and finally to think in terms of proteins, fats and carbohydrates. An older sister helped with the cooking and an aged father looked after the patient at night.

It was not possible to do a sugar tolerance* test on this case because of the distance from the laboratory. Neither were quantitative tests for sugar in the urine made.° I am indebted to Dr. S. W. Budd, Richmond, Va., who made the blood sugar estimations, gratis, on this patient.

†Dr. E. P. Joslin, Boston. J. A. M. A. June 9, 1923.

‡The Treatment of Diabetes With Diet and Insulin. Dr. E. P. Joslin, Boston. Va. Medical Monthly, Jan., 1924.

§J. A. M. A. June 9, 1923. Page 1726.

*Sugar Tolerance Testing, Drs. R. A. Kern and Leon Jonas, Philadelphia. For each kilogram of body weight, 1.75 gm. of gluscose, is given, dissolved in 2.5 c.c. of water per gram of glucose; the blood sugar being estimated before the glucose meal and at hourly intervals thereafter. J. A. M. A. Oct. 27, 1923.

°Quantitative Test for Sugar in Urine.—Barclay. J. A. H. A. Jan. 12, 1924.

Report of Case.

History.—S. S.,* aged 53, colored, female, with a history of diabetes of at least eight years' standing. Began with typical symptoms. Past history negative. Family history negative. Present illness dates to three weeks ago when patient cut her little toe on right foot while paring a corn.

Examination.—First seen October 29, 1923. Physical examination revealed fairly well nourished individual. No apparent signs of coma. The breath did not smell of acetone. Breathing uniform on both sides of chest. Heart and lungs negative. Blood pressure 150/60. Pulse regular, of moderate tension, temperature and respiration normal. An area of gangrene was present on dorsum of right foot, moist and ulcerated, and involved tissues down to tendons; about 4 inches long and a mean breadth of 2 inches. The second, third and fourth toes were gangrenous, dry, and at their base a slough had occurred that threatened spontaneous amputation. Evidently, a cellulitis had intervened between the cutting of the corn and the present state. The odor was horrible; and the patient was in great pain. She was unable to sleep, had lost thirst and appetite, was voiding moderate amount of urine heavily laden with sugar; acetone and diacetic acid negative; albumin negative. Blood sugar 300 milligrams in 100 c.c.; Wassermann reaction negative. Height 64 inches. Weight 50 kilograms. Bowels constipated. No nausea.

Treatment.—A diet of 1,500 calories was determined upon, and the Eli Lilly Handbook used as a guide. Protein 200 cal. Fat 1,125 cal. Carbohydrate 175 cal., in twenty-four hours and divided by three meals. After sterilizing the site of injection (lower left inguinal) with tincture of iodine, she was given 2 units of U-10 Iletin hypodermically in the subcutaneous tissue. The doses each day were increased; and each dose given from one-half hour to twenty minutes before the noon meal, one dose daily, because of the distance from my office and the time required at bedside following each administration.

October 30, 2 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

October 31, 4 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

November 1, 6 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

*Referred by Dr. John W. Robertson, Onancock, Va.

November 2, 10 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

November 3, 12 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

Two hours following this dose a slight reaction occurred in the form of stupor, drowsiness, nervousness, and anxiety of patient and doctor. We were looking for something to happen; and the severity of symptoms may have been a bit overdrawn. 50 c.c. orange juice and 10 gm. glucose syrup, repeated in five minutes, promptly aroused her. All specimens urine following, that day, were sugar free.

November 4, 8 units U-10, diet 1,500 calories. All specimens urine sugar free.

November 4, Blood sugar 200 milligrams in 100 c.c. Acetone and diacetic acid negative.

November 5, 8 units U-10, diet 1,000 calories. All specimens urine sugar free.

Diet reduced in calories, because patient complained of getting too much food. There was a desire to use less iletin, also.

November 6, 8 units U-10, diet 1,000 calories. All specimens urine positive for sugar.

November 8, 9 units U-10, diet 1,000 calories. All specimens urine positive for sugar.

November 9, 10 units U-10, diet 1,000 calories. All specimens urine positive for sugar.

Gangrene had started to heal: line of demarcation was forming.

November 11, 10 units U-10, diet 1,000 calories. All specimens urine sugar free.

November 13, 5 units U-10, diet 1,000 calories. All specimens urine sugar free.

Pain has caused little discomfort. "Slept well and felt well inside."

November 15, 5 units U-20, diet 1,000 calories. All specimens urine sugar free.

November 18, 2½ units U-20, diet 1,000 calories. All specimens urine sugar free.

November 20, 2½ units U-20, diet 1,000 calories. All specimens urine sugar free.

Twenty-four-hour specimen urine—A. M. to P. M. 900 c.c. P. M. to A. M. 750 c.c. Specific gravity 1,025, amber, acid. Sugar negative. Albumin negative. Acetone and diacetic acid negative.

November 23, 2½ units U-20, diet 1,000 calories. All specimens urine sugar free.

November 23, Blood sugar 160 milligrams in 100 c.c.

November 27, 2½ units U-20, diet 1,500 calories. All specimens urine sugar free.

Patient not seen for one week. Iletin discontinued.

December 10, Blood sugar 100 milligrams in 100 c.c. Sugar free.

January 8, 1924. Patient able to be about on foot. Sugar free.

The gangrene was treated locally with Dakin's solution; hot packs about foot were used early in treatment.

Carbon dioxide combining power of the blood was not determined in this case. Banting† refers to it as being useful for a metabolic study of the disease, but not necessary for the actual clinical treatment.

February 22, 1924. Dorsum of foot healed. Toes show signs of sloughing; good line of demarcation at their base. Diet 1,500 calories. Sugar free. Up and about the house with cane.

There has been no attempt at originality in this paper that should be called "Gleanings from Important Reports on the Use of Insulin."

In order to add anything worth while to the great bulk of accumulated knowledge, one must have had at least one hundred clinical cases. This paper was written with the hope that my fellow practitioners in Accomac County might be saved the time required for reviewing the literature on the subject to date.

In the bibliography some dates appear later than December 10; but the authors have brought to our attention material that could not be omitted.

"*Wayside.*"

SPONTANEOUS PYOPNEUMOTHORAX COMPLICATING A CASE OF LOBAR PNEUMONIA.*

By BASIL B. JONES, M. D., Richmond, Virginia.

Spontaneous pyopneumothorax is a very rare complication of lobar pneumonia. Nothnagel, in his System of Medicine, published in 1904, does not mention this condition as a complication of lobar pneumonia. An investigation of the Index Medicus from 1904 to 1922, under the heading of pyopneumothorax, did not reveal any case exactly corresponding to the one reported here. I have been unable to find any reference to spontaneous pyopneumo-

†Further Clinical Experience With Insulin. F. G. Banting, W. R. Campbell and A. A. Fletcher. British Medical Journal, Jan. 6, 1923.

*From Medical Service, Children's Hospital, Los Angeles, California.

(1) Monatschrift F. Kinderheilkunde, Dec., 1922, 24. No. 3.

thorax as a complication of lobar pneumonia, in Nelson's Living Medicine or in Holt's Diseases of Infancy and Childhood published in 1919. Garrod, Batten and Thursfield in their book, Diseases of Children, published in 1913, mention a case of broncho-pneumonia reported by Alice E. Sanderson, which developed a spontaneous pyopneumothorax. This case showed areas of softening and breaking down of the lung tissue due to a pneumococcus infection. Schonfeldt[1] has recently reported four cases of influenzal pneumonia complicated by spontaneous pyopneumothorax. Two of these cases were caused by perforation of an abscess, one by rupture of an emphysematous bubble. Since spontaneous pyopneumothorax is obviously such a rare complication of lobar pneumonia, the following case seems worthy of reporting.

Baby, L. S., age 17 months, the only child of healthy parents, had never been ill before the present illness, with the exception of a slight cold. The present trouble started as a coryza which continued for three days and the child was not really ill until the fourth day. The afternoon of the fourth day the temperature rose rather suddenly to 104.4.° Examination at that time did not reveal any pneumonic involvement but did show reddened drums and a pharyngitis. Otherwise the examination was not remarkable. The next morning the temperature was 105,° the child had a grunting respiration, a few rales in the right lower lobe, but no demonstrable dulness. It was not until the next day, January 12th, that consolidation with fine rales appeared in the left lower lobe. The next morning the left upper lobe also showed definite involvement, and the picture at that time was typical of lobar pneumonia involving the entire left lung. Dulness, slightly diminished bronchial breathing, and a few fine rales were the findings recorded. Careful percussion of the right border of cardiac dulness was done and measurements were taken to serve as a standard for future observations. From this time until January 16th, six days after the sudden rise in temperature, the baby ran a course typical of lobar pneumonia. The temperature varied between 104° and 105,° the respiration between 50 and 60, and the pulse averaged about 140. The morning of the 16th the temperature was only 102° and the baby seemed better. Physical examination suggested slight clearing of the left lower lobe, and it was assumed that the continuation of symptoms was due to activity in the left upper lobe. That night the baby suddenly developed alarming symptoms, she became very dyspnoeic, seemed to be very uneasy, became rapidly distended, the pulse became very rapid and thready in character, and, except for the elevation of temperature, she presented a true picture of shock. Physical examination the following morning showed the child to be in poor condition. The temperature was 103.8,° there was extreme dyspnoea with cyanosis, a very weak pulse and a badly distended abdomen. The striking feature of the examination was the complete alteration of the lung findings. The entire left chest gave a rather tense tympanitic note on percussion, breath sounds were almost absent and what sounds were heard had a distinct amphoric character. The heart and large vessels were pushed at least two centimeters to the right. These findings naturally permitted but one interpretation and the parents were advised that the child had developed a spontaneous pneumothorax and that pus would probably form in a short time. The baby was removed to the Children's Hospital for X-ray examination and more careful observation. A picture was taken at the time of admission and from this picture the following report was made by Dr. W. B. Bowman: "A large accumulation of fluid or pus in the left pleural cavity. The heart and aorta are pushed to the right. Patient has a collapsed lung on the left with a large pneumothorax. The accumulation of air on the left side has prevented the heart and aorta from returning to the normal position. Right lung shows some emphysema."

Shortly after this picture was taken a needle was inserted into the left side of the chest and, simply by changing the direction of the needle, pus or air could be withdrawn at will. The pus was rather thin and of a chocolate color due to the admixture of blood. From this pus staphylococcus aureus only was grown. Owing to the poor condition of the patient any further operative procedure was deferred until the next day. January 17th, the last day of the illness, a rubber catheter was inserted into the left side of the chest by Dr. G. L. Chaffin. This operation was done by the so-called closed method and local anaesthesia only was used. So far as could be seen there

XUM

was no change in the patient's condition following this operation and that afternoon the patient died. An autopsy was done by Drs. M. E. Bettin and C. W. Bonynge and the following report was made:

"Body of well developed and well nourished female infant. Drainage tube in 7th left interspace in mid-axillary line. Abdominal cavity—Liver showed some cloudy swelling. Spleen not enlarged, not septic. Stomach, intestines, pancreas negative. Kidneys show some cloudy swelling. Mesenteric lymph nodes slightly enlarged.

Pleural cavity—Lungs and heart removed in toto. Right lung markedly emphysematous. Right pleura negative. Left pleura covered over with thick fibrinous exudate, in places 1 cm. thick. Left lung collapsed with an anterior border only 2 cm. in thickness. Lung tissue solid. Posteriorly, just below the hilus and on the outer aspect of the lung is a rupture 1 cm. in length. Near this rupture are several punctate areas. Section of this portion of the lung shows one large abscess with openings into a bronchus and into the pleural cavity. There are several smaller abscesses in the vicinity.

Microscopical examination of sections from this portion of the lung show typical abscess formation—Fibrin threads, in the meshes of which are numerous leucocytes and necrotic cells. Weigert's stain shows only isolated cocci. In the area about the abscess the alveoli are filled with fibrin, a few leucocytes and epithelial cells. Microscopical examination of sections taken from the left upper lobe show that part of the lung to be in the stage of red hepatization, i. e., alveoli filled with fibrin, numerous red cells and a few leucocytes.

Photograph of lungs removed post-mortem. Note collapse of lung and heavy deposit of fibrin. Arrow points to rupture.

Heart and pericardium negative. Heart valves negative.

Anatomic diagnosis:

1. Pyopneumothorax, collapsed left lung.
2. Lobar pneumonia of left lung with abscess formation, and rupture of an abscess into a bronchus and the pleural cavity.
3. Emphysema of right lung.
4. Cloudy swelling of liver and kidneys.

Cause of death—Lobar pneumonia left lung, with abscess formation. Pyopneumothorax."

Comment—This case is of interest from several standpoints. First because of the extreme rarity of pyopneumothorax as a complication of lobar pneumonia. The paucity of literature on this subject is significant in this respect. Second, the age of the patient. Pyopneumothorax from any cause is an extremely rare finding before the third year of life. Third, from the standpoint of pathogenesis. Clinically and also from the anatomical appearance, the primary disease was lobar pneumonia. Further studies post mortem, however, suggested that the etiologic agent was staphylococcus aureus and not one of the pneumococci. Certain cases of pneumonia anatomically lobar in type, are known to be due to staphylococci. No organisms resembling pneumococci were found in this case, even in sections taken from the upper lobe where the pneumonia was in the stage of red hepatization. Staphylococci are notorious for their tendency to form abscesses, and in this case the fatal complication resulted from the rupture of a staphylococcic abscess. Fourth, from the standpoint of symptomatology and physical findings. When this abscess ruptured, three factors at least must have become operative, the shock incident to the tearing of the pleura, the strain on the circulation due to the collapse of the lung and the sudden displacement of the heart, and the toxaemia from the widespread pleural infection. The urgency of the patient's symptoms showed that some severe complication must have taken place suddenly, and the physical examination left little doubt as to what this complication was. To recapitulate the changed findings in brief: The dulness on percussion was replaced by a tense tympany best explained by air under pressure. The marked diminution of the breath sounds could adequately be explained on the same basis. The amphoric character of the breath sounds with a sense of nearness

and intensification of the voice sounds, especially on inspiration, were very suggestive of an opening between a bronchus and the pleural cavity. The marked displacement of the heart and the presence of the "coin test" further confirmed the diagnosis. The final points of interest to be discussed here are the subsequent course of the case and some of the anatomic findings post mortem. Within twelve hours after the rupture occurred, an appreciable collection of fluid had formed. The X-ray indicated this and the physical examination showed a shifting dulness in the left chest in addition to the other findings. Six ounces of a bloody purulent fluid were withdrawn and several syringes of air, the patient being in a prone position. Post mortem, the most interesting and instructive finding, except of course the confirmation of the clinical diagnosis, was the marked out pouring of fibrin which presumably had formed after the rupture of the lung, two and a half days previously. This fibrin, in places was a cm. in thickness.

Medical Arts Building.

TRAUMATIC DISPLACEMENTS OF THE UTERUS.*

By J. M. ROPP, M. D., Roanoke, Va.

The rapid and wonderful industrial development of the country during the past twenty-five years has been accompanied by an ever increasing number of medico-legal and medico-economic problems, the solution of which has depended primarily on the assistance of the leaders of the medical profession.

Fortunately, the progress of modern medicine has kept well in advance of industrial development, thus enabling the medical profession at all times to meet and supply the medico-legal as well as all other demands made upon it by the industrial world. The medical profession has been much more intimately associated with industrial development than the majority of the medical profession are aware of.

The railway companies and industrial corporations were quick to see the danger, and the futility as well as the great financial waste, of leaving the solution of their medico-legal problems to the unscrupulous lawyer and the equally if not more unscrupulous medical expert witness, as had been the case, and early turned to the medical profession for assistance in the solution of practically all of their medico-legal controversies. And at the present time, all State and privately owned insurance companies and industrial commissions responsible for the payment of these claims against the railway and industrial corporations are seeking facts concerning these problems from the medical profession.

The group of medico-legal entities, the result of personal injury cases, that have engaged the attention of the courts of the country and the claim departments of the railway companies and industrial corporations for the past twenty-five years have undergone many changes during that time. Many of those that were once so frequent, so popular and so profitable to both the claimant and his lawyer, have disappeared entirely from the medico-legal skies and other equally, if not more, difficult ones have from time to time taken their places. Such was the fate of railway spine once so frequent and so popular. Traumatic visceroptoses of various kinds, which began to appear about twenty years ago and for some years were so frequently made the basis of personal injury claims, were displaced in frequency and popularity by traumatic displacements of the kidney, which soon gave place to coccygodynia. These and many others have almost if not entirely disappeared and are at the present time rarely if ever made the basis of personal injury claims.

The fact that these claims could not withstand the light of scientific knowledge, caused the courts to frown upon them, and they consequently became less profitable to the claimant and his attorney, and gradually fell into financial disrepute and went out of style, as it were.

Among the more recent arrivals in this field I will only mention three, viz., traumatic hernia, traumatic displacements of the uterus, and sacro-iliac separations, as these three seem to be at the present time the most popular diagnoses with many claimants and their attorneys. These are all three very difficult problems and have been the subject of careful and thorough investigations by the leading gynaecologists and railway surgeons of the country in the effort to clear up these threatening clouds on our medico-legal horizon, and notwithstanding the fact that these investigations have borne much fruit, they are yet very far from a satisfactory solution.

*Read at the meeting of the Association of Surgeons of the N. & W. Railway, at Cincinnati, Ohio, September 12, 1923.

XUM

Of all the medico-legal problems, the result of accident cases, that have ever come before the court of the country or engaged the attention of the claim departments of the railway companies, none have ever presented greater difficulties in the way of a just and satisfactory settlement than those arising from alleged traumatic displacements of the uterus. This is particularly so with the railway and street railway companies, handling, as they do, the public accident cases, all of which are tried in court before juries—unless settled or compromised before reaching this stage. Industrial corporations have much less trouble with these cases as they are all settled by industrial commissions, and this fact alone will explain why the public utility corporations are so frequently the subject of suits for this alleged injury.

The great difficulty encountered in the effort to convince a jury of laymen of the acknowledged scientific facts in the production of this condition has only too often demonstrated the fact that the settlement of these claims in court is not always a matter of scientific knowledge, but of the wisdom of twelve good men and true, who determine them. This fact has forced the claim departments of the railway companies to settle the great majority of these claims (regardless of their merits) out of court, realizing that this is by far the more economical way of disposing of them. This of course should not be the case.

I may say, in presenting this paper, that I have nothing original to offer, but am merely presenting the views of the leading gynaecologists and railway and industrial surgeons of the country with the hope that a careful study of the results of their experience and observations will help us in our efforts to separate the true from the false claims. At the same time I wish to impress the great importance of a careful and thorough examination of all these cases on our local surgeons and the general practitioner, and also to remind them of the tremendous responsibility one assumes when he informs the claimant that traumatism might have been an etiological factor in the production of her displacement; for it is a well-known fact that, when the claimant's lawyer can get the surgeon to admit that while traumatism had nothing whatever to do with the production of the claimant's displacement, yet it is possible for traumatism to produce a similar condition, he has practically won his case regardless of its merits.

By being careful in the examination of the claimant, frank and positive in our statements to them, many of these unjust claims may be avoided, or prevented, thereby saving the railway companies much unnecessary annoyance, and the payment of many of these unfair and unjust claims. Medico-legal prophylaxis, in my humble opinion, is worth a great deal more in these matters than medico-legal therapeutics. It is here that the truth of the old adage "an ounce of prevention is worth a pound of cure" is most clearly demonstrated. The vast majority of these claims are the result of carelessness on the part of the general practitioner who first examined the claimant, as he either failed to make a thorough examination of the claimant or did not realize the important medico-legal aspect of the case.

When these cases arise, the woman is not necessarily a malingerer, as she may have implicit confidence in the physician who examined her, and at the same time may have been utterly ignorant of the fact that she had been the subject of uterine displacement, possibly for years, as it is a well-known fact that many women have displaced uteri that are symptomless until sometime subsequent to a slight or insignificant injury, she is examined by a physician who finds a displacement and informs her of the fact. She immediately attributes her condition to the alleged injury and, unfortunately, her physician either innocently or, as it sometimes happens, purposely agrees with her. The usual history now is that the woman continues to worry and dwell mentally upon the matter until a lawyer is consulted and a suit results. Theses cases particularly mean "still waters and green pastures" for unscrupulous members of the legal profession.

While so far the Norfolk and Western Railway Company has had but few cases of this kind to contend with, many railway and street railway companies and insurance companies report that it is a very frequent cause of personal injury claims and, at the same time, among their most difficult to handle. One of the largest street railway companies in the country reported that it had over 500 cases during the past ten years; another street railway company reported 100 cases during the same period. Chief surgeons of many railroads report it as being a very frequent cause

of claims. Insurance companies state that traumatic displacement of the uterus is a frequent cause of personal injury claims and one of their most difficult ones to settle. One insurance company alone reported that in the year of 1921 it had paid approximately $20,000.00 in the settlement of five claims for alleged traumatic displacement of the uterus.

These figures can but convince us of the fact that this is a medico-legal problem of great importance, and one that demands our serious consideration.

Before taking up the causes of uterine displacements and the question of whether or not traumatism is ever an etiological factor in their production, let us look carefully into the anatomical situation in the normal pelvic cavity. By so doing it will greatly help us to understand the effects of traumatism with reference to uterine displacements.

The uterus is a small pear-shaped organ slightly flattened antero-posteriorly and in the adult female measures about one and one-half to two inches in length and weighs normally about two ounces. Its cervical part is embedded in the pelvic floor, the pelvic fascia and the levator ani muscle making up the principal part of this strong pelvic diaphragm.

The body of the uterus is suspended in the pelvic cavity by the broad ligaments which are greatly strengthened and reinforced below by the utero-sacral ligaments, making a strong suspension bridge arrangement. It is protected in front by the bladder, above and behind by the intestines. All of these structures are surrounded by a strong bony framework, the pelvis.

When a woman is standing or sitting upright, the uterus lies in practically a horizontal position, its anterior wall in contact with the bladder. This position of the uterus is, however, not a fixed one as, owing to the requirements of childbearing, the organ is necessarily mobile. Pressing as it does on the posterior wall of the bladder, its position is continually changing in an antero-posterior plane, accommodating itself automatically with the varying size of the bladder.

Neither is the level of the uterus a fixed one as, under the influence of strong abdominal pressure, such as results from straining, the elastic supports of the uterus allow a certain amount of descent in the direction of the pelvic outlet.

The uterus, notwithstanding its remarkable mobility, nevertheless, under normal conditions, returns to its normal position after temporary displacements, such as result from pregnancy, forcible manipulations, severe straining, or any cause that does not interfere with the elasticity of its supports, or its inherent muscular structure. The readiness with which the uterus returns to its normal position after the external os has been pulled down until it is exposed at the vulva, in order that the cervix may be dilated or a curettage done, is little short of marvelous.

Dr. Harry E. Mock states that he has in many cases, just prior to operation, purposely endeavored to pull the uterus down and push it backward before opening the abdomen, and found that in the majority of cases it was in its normal position when the abdomen was opened, while on the other hand, in cases of existing retro-displacements, even though the fundus was pushed forward before operation, on entering the abdomen the uterus was found to have returned to its former retro-displaced position.

We have seen that the uterus is maintained in its forward or horizontal position by three factors, viz., (1) The proper tonicity of its anatomic supports; (2) The elasticity of its musculature, and (3) By the intra-abdominal pressure which serves to keep its anterior wall in contact with the bladder. It must follow then that anything that interferes with any one or all of these factors must constitute the sole causes of uterine displacements.

We find among those interfering with the first factor, lacerations of the pelvic floor, relaxed abdominal walls, and relaxed utero-sacral and broad ligaments; with the second, subinvolution following childbirth, tumors and inflammatory changes increasing the size and weight of the uterus, and inflammatory adhesions in the surrounding structures; and with the last, increased intra-abdominal pressure from tumors adjacent to the uterus.

In this connection the fact must not be lost sight of that a certain per cent of women have retroverted uteri that produce no symptoms and they are unaware of their condition, which should be considered normal with them.

In considering the causes of uterine displacements many of the authorities mention traumatism as a possible cause but, when scrutinized carefully, one finds that they all have ref-

XUM

erence to that rare condition known as acute temporary displacements and that none of the authorities states that permanent uterine displacements are ever the result of traumatism.

Kelly mentions injuries as a cause of acute retro-displacements, such as violent exercise, falls, and lifting heavy weights while the bladder is full, all accompanied by acute symptoms such as were never experienced before and demanding immediate relief. He further states that in all recent cases, the uterus continues to remain in its normal position after reposition, no further treatment being needed.

Dr. Henry Lewis states that any sudden increase in intra-abdominal pressure because of traumatism, in a woman whose pelvic floor was already weakened, might cause the contents of the pelvis to be forced nearer the outlet, thus merely aggravating a pre-existing condition.

Hart and Barbour state that a sudden or violent blow might be the cause of uterine displacement, but that it would be exceedingly difficult to establish.

Graves says that it should be noted that the relaxation of the pelvic supports with permanent retroversion is not the result of falls or jars for, in a woman with a normal pelvis, nature has provided for all accidents of this kind.

Unless a woman has a very full bladder, the sudden increase of intra-abdominal pressure serves only to force the uterus into its normal position. If the bladder is full, it is conceivable that the uterus might be forced backward by the intestines, entering the utero-vesical space. Unless the force is great enough to cause actual destruction of the tissues, the natural elasticity of the uterus and its supports causes it to return immediately to its normal position. It was formerly taught that various forms of uterine displacements, such as retroversion, prolapse and procidentia, were frequently caused by falls and injuries, but it is now known that these conditions are due to gradual stretching of supports, either congenitally weak or damaged by child-bearing.

Dr. Harry E. Mock, of Chicago, in a paper on this subject before the American Medical Association at St. Louis, May, 1922, states that he had sent out questionnaires to fifty of the leading gynaecologists in the country and, from the replies received, practically all were unanimous in their opinions that traumatism is never a causative factor in the production of uterine displacements, except in acute temporary displacements caused by falls on the buttocks, or heavy straining while the bladder is over-distended. Among the replies received, Dr. N. Sproat Heaney said, "The cases of actual traumatic displacements of the uterus are extremely rare, but I have seen a few instances in my own patients where I had examined the patient before and subsequent to a fall and found the uterus displaced.

"In all these instances the accident occurred when the patient had a full bladder and the trauma occurred when the uterus was half way back and it was easy to throw the uterus backwards. In such instances it happens that if the patient is seen soon after the accident, a simple replacement of the uterus is sufficient, other treatment not being required."

Dr. Moorehead replied that he had seen female patients with injuries due to all sorts of trauma, but had never seen or heard of one who received an injury producing displacements of the uterus, even in such marked injuries as fracture of the pelvis.

Dr. Harpster replied that, of approximately five hundred such claims, he knew of no actual cases of traumatic displacements of uterus, abnormal positions in every case being due to other causes.

Dr. Samuel C. Plummer said, "The majority of these claims against the railway companies are due to rough handling of the trains, either by setting the emergency brakes or are a result of collisions or derailments in which the patient is generally thrown against the back of the seat in front of her, receiving some violence to the upper part of the body, but none to the abdomen or pelvis. The usual history is that no complaint of any pelvic trouble is made until some weeks afterwards, when, as a result of a pelvic examination by a physician, a displacement of the uterus is discovered, without, however, any sings of acute injury.

"I believe that traumatic displacements of the uterus are exceedingly rare and, when they do occur, that they are accompanied by immediate and violent symptoms, such as extreme pain, local swelling, and tenderness. I believe that the vast majority of these cases are old cases whose presence is either unknown or denied."

One of the best known railway surgeons in the country replied that in more than twenty-five thousand accident cases, he had never seen a true displacement, retroversion, retroflexion

or prolapsus due to traumatism, and further said that often, when claimed, they do not exist. The patients too often make the statement of displacement, and this fact is clung to by claimant and attorney.

This surgeon in this connection reported the following case: In this instance the claim of displacement was made and substantiated by three doctors. Between the time of injury and the time of trial, the patient was taken with acute appendicitis and admitted to his hospital service. At the time the patient did not know of his connection with the company, although he had a file on the case.

An appendectomy was done. Three disinterested surgeons were called into the operating room, and by enlarging the incision, the uterus was found in a normal position.

The claimant and her attorneys were afterwards notified. The case never came to trial but the attorneys were very bitter because of the claimant's carelessness in securing the company's chief surgeon to remove her diseased appendix.

Dr. Mock states that, in his own experience, which included seven years as instructor in Gynaecology at Rush Medical College. nine years as chief surgeon of a large industry employing over six thousand women, several years in general surgery with an extensive traumatic service, he had never seen a true case of traumatic displacement of the uterus, but had seen several alleged cases, none of which was able to withstand a careful investigation.

Dr. Mock commenting further on the replies to the questionnaires sent out by him says, "The outstanding fact is that no one was able to report a true permanent displacement of the uterus which could irrefutably be ascribed to accident as the sole etiological factor, but frequently the general practitioner, who had never thought of the medico-legal aspect of the case. thought he could trace the condition by the history of the symptoms, back to an alleged injury, and frequently the patient dated her trouble from a certain injury, but neither she nor the physician knew whether or not the displacements was present prior to that date."

From a careful survey of all these facts, we can come to no other conclusion than that permanent displacements of the uterus are never due to traumatism *per se*. It cannot be denied that traumatism may cause some exaggeration of a pre-existing and often unrecognized displacement, but a careful examination will show the chief etiological factor to be pre-existing diseased conditions or damage, usually the result of childbearing.

Acute temporary displacements of the uterus, under conditions already mentioned, may occur as the result of traumatism, but they are accompanied immediately by symptoms of such severity that they demand immediate attention (these symptoms being such as the patient never experienced before), and the relief experienced on replacement is so prompt and so complete, as well as permanent, that there should be no difficulty experienced in distinguishing this condition from the permanent displacements which are so frequently the basis of claims.

So far, I have been unable to find any record of an acute case having ever been made the basis of a personal injury claim.

MacBain Building.

CHRONIC APPENDICITIS AS A CAUSE OF ACIDOSIS IN CHILDREN.*

By STUART McGUIRE, M. D., Richmond, Va.
Surgeon to McGuire Clinic.

The term acidosis was first employed by Naunyn to designate incompletely oxidized acid substances in the organism of a diabetic subject which produce an intoxication of the patient. Some time later Marcel Labbe showed that the acid syndrome may be encountered in morbid processes other than diabetes, and that it is often observed after starvation, prolonged vomiting, severe diarrhoea, certain febrile diseases, the administration of anesthetics, and numerous other conditions.

It is not the purpose of this paper to attempt to discuss the present conception of acidosis. The original theory that it was simply a diminution of the reserved supply of the fixed bases of the blood and other tissues of the body has been found to be inadequate. In addition to the acid toxicity of the acetone compound there would have to be considered the special toxicity found to remain in the blood serum after it has been restored to normal alkalinity by the exhibition of bicarbonate of soda. Then too the complicated pathologic problems of hepatic insufficiency and renal impenetrability would have to be dealt with.

Let it be sufficient to say that acidosis is not

*Read at meeting of Tri-State Medical Association of the Carolinas and Virginia, held in Greenville, S. C., February 21-22, 1924.

a disease but a symptom. It is not a cause but a result. Like pain and fever it is merely the expression or manifestation of some disease or abnormal condition.

The acidosis syndrome is a familiar one to most practitioners. The patient suffers with a slight but constant headache. There is usually drowsiness and sometimes stupor. The respiration is rapid and difficult. There is some fever, the temperature often reaching 102° to 104° F. Anorexia is always marked. There is mild stomatitis with a red varnished tongue. Sometimes there is diarrhoea and usually repeated vomiting which at length may assume the pernicious type. Often there is abdominal and gastric tenderness such as to suggest appendicitis. The most characteristic symptom is the odor of the breath which resembles that of chloroform or a russet apple. The urine shows large quantities of acetone and traces of albumen and diacetic acid. This is sometimes absent in the early stages and most marked during convalescence.

It has been observed that certain children have recurring attacks of acidosis at intervals of three or four weeks. These patients are usually nervous, high-strung subjects and the attacks are precipitated by constipation, imprudence in eating, excessive fatigue, over-excitement, exposure to cold, or some acute illness. During the interval between the attacks, the child may have good digestion and appear to be in normal health. These patients properly go to the pediatrist who treats them in various ways with varying degrees of success.

While it is important to direct the child's mode of living and improve his general health by the observation of recognized sanitary measures, the most important factor in the treatment of these cases is the proper regulation of the diet, which should be low in fats and high in carbohydrates. Much benefit is often derived from testing the skin reaction of the various food proteins and eliminating those that are positive. It has long been recognized that a tendency to acidosis is created by local foci of infection; hence, diseased tonsils should be removed, abscessed teeth extracted, discharging ears treated and suppurative processes in glands, joints or bones properly dealt with.

In some cases, despite all that can be done, the attacks continue to recur and the child goes from bad to worse. Some years ago Dr. McGuire Newton, a child specialist of Richmond, brought such a case to me. He said that while he had no definite reasons for his opinion, he believed that the symptoms were due to chronic appendicitis. He stated that much had been written about acute appendicitis in children and the profession was aware of its frequency and danger, hence cases were as a rule diagnosed early and operated on promptly. He said that very little had been written about chronic appendicitis in children and he was sure the disease was more common than was generally supposed and that the manifestations were attributed to other causes until the diagnosis was cleared up by a frank attack. He gave the history of several children he had treated over a long period of time for recurring attacks of acidosis, who had developed acute appendicitis and after the appendix had been removed ceased to suffer from acidosis. He spoke so earnestly and logically that I agreed to operate on his little patient, feeling justified in doing so because the case had been long and carefully studied and all the usual methods of treatment had been faithfully tried without benefit. On opening the abdomen I found and removed a kinked and adherent appendix evidently the seat of chronic infection. The child made an uneventful recovery, gained weight and strength rapidly, and has had no further attacks of acidosis.

Since the case just described I have done the same operation for similar symptoms on fifteen other patients and the successful results have been so uniform and gratifying that I have feared I might drift into the delusion that appendectomy was indicated in all cases of recurring acidosis in children. I have tried to protect myself from this serious danger by being doubly careful in my diagnostic study of these patients, and being slow to bring myself to the point of advising operation. To this may probably be attributed the successful results reported.

The diagnosis of chronic appendicitis is often difficult in the case of an intelligent adult, who can give his history and describe his symptoms. It is naturally much more difficult in a child, who is sick one day and well the next, and whose mouthpiece is usually a young and anxious mother. The absence of pain or tenderness by no means excludes chronic appendicitis. Fortunately, as was brought out by Dr. A. L. Gray in a paper written in 1920, the improved technique of X-ray examination of the gastro-intestinal tract will often give in-

formation of great value as to the condition of the appendix. A positive diagnosis of chronic appendicitis may be made if the X-ray shows—

1. Adhesions about the appendix.
2. Concretion in the appendix.
3. Constant constrictions in the appendix.
4. Delayed emptying of the appendix.
5. Presence of tenderness which follows the appendix when it is manually displaced under fluoroscopic examination.

A negative report after an X-ray examination does not exclude chronic appendicitis. If the lumen fails to fill after the administration of a barium meal it may mean the total occlusion of the appendix, or it may mean a transient filling and emptying so that at the time of examination it is empty. An empty appendix is of no definite significance. Therefore, an X-ray report is valuable in these cases when it is positive, but is unreliable when it is negative.

The time limit of this paper will not permit a detailed report of the sixteen cases in which I have removed the appendix for recurring attacks of acidosis, but I desire to record one recent and severe case where the X-ray was negative but whose life I am confident was saved by the operation. This case is of special interest because I was forced to operate during an acute attack which is contrary to my usual practice and because, in addition to removing the appendix, I also did a cecostomy in order to introduce fluid into the large bowel.

E. V. M., female, aged eleven, entered St. Luke's Hospital, May 21, 1923. Her mother stated that she had repeated attacks of acidosis between her first and sixth year. Her tonsils were then removed and she had no further attacks for three years. When nine years of age the attacks recurred. On admission to the hospital she had been ill with an attack for four days. Examination showed the patient emaciated and dehydrated, skin cold and gray in color, pupils markedly dilated, eyes sunken and staring, lips and tongue red and parched, respiration deep and sighing. Urinalysis showed presence of acetone and diacetic acid. Patient constantly begged for water which was promptly vomited regardless of the amount taken. The case was turned over to Dr. Howard Urbach, a specialist in diseases of children, who treated her medically along accepted lines. The patient was critically ill for ten days and then began to improve. In two weeks she gained nine pounds in weight and was able to walk about the hospital and go for an automobile ride.

A careful general examination was then made to try to determine the cause of the recurring attacks of acidosis. There was apparently slight tenderness over the appendix, but this was not marked. X-ray of the gastro-intestinal tract was negative except that the stomach was found slightly larger than normal. The father and mother were told that it was impossible to make a definite diagnosis but that in view of experience in similar cases it was believed it would be wise to remove the appendix. The parents consented to the operation but urged postponement in order to let the child gain additional weight and strength. This was agreed to but on June 19th while the child was still in the hospital under careful supervision she complained of headache, and despite prompt and vigorous treatment developed severe symptoms of acidosis. For four weeks she was desperately ill and failed to improve under the measures suggested by various consultants. Finally it became evident that death was imminent and inevitable unless something radical was done, and an operation was determined on as a final effort to save life. Under local anesthesia aided by light inhalations of gas-oxygen, the abdomen was opened, the appendix removed and a rubber tube inserted into the cecum after the technique suggested by Dr. J. W. Long for enterostomy. The appendix was found chronically inflamed and adherent. Examination showed a stricture at the base and two concretions in its lumen. After the patient was returned to bed fluids were given by mouth to relieve the intense thirst and a solution of soda and glucose was injected through the tube into the bowel every hour to supply fluid in her dehydrated tissues. For two days her life apparently hung by a thread but then the vomiting lessened, the thirst diminished and from that time on she made a rapid and uneventful recovery. The patient's estimated weight at the time of operation was 35 pounds. Four months later her weight was 70 pounds and she is now in good general health.

So many unnecessary and injudicious operations have been done for supposed chronic appendicitis that I have hesitated to write a paper which even in a small way might add to the number, but my experience has been such that I feel justified in advising appendectomy in cases of recurring attacks of acidosis in chil-

XUM

dren, when hygienic and dietectic treatment have been exhausted without relief and where no other focus of infection can be discovered. Under these conditions I would urge the operation with great confidence if the X-ray examination showed the appendix was not normal.

DIAGNOSTICS OF SOME ACUTE ABDOMINAL CONDITIONS.*

By CORA Z. CORPENING, M. D., Suffolk, Va.

The acute abdomen is one of the most common and most important conditions which confronts the physician or surgeon, and the doctor who can most ably dizerentiate between the various acute abdominal conditions, through the prompt interpretation of the signs and symptoms, is the doctor who will greatly lower the operative mortality, and will ultimately do the greatest service to mankind.

It is not my purpose to present the acute abdomen whose signs, symptoms and physical findings are so indefinite that an exploratory operation is indicated for diagnosis, but rather to present a few conditions commonly encountered in every day practice, whose clinical characteristics are so typical that a diagnosis can promptly be made if the signs are properly interpreted.

Among the conditions most commonly encountered are acute appendicitis, acute salpingitis, acute cholecystitis, ectopic gestation, acute intestinal obstruction, traumatic rupture of abdominal viscera, and acute peritonitis. Some of these conditions are very common, others are seen less frequently, but all of them will likely be encountered several times in the experience of a busy doctor.

We will first take up the most common condition found in the acute abdomen, that is, the acute appendix, whose four cardinal symptoms were classified by the late Dr. Murphy. These appear in the following order:

1. Pain around umbilicus.
2. Nausea and vomiting.
3. Fever.
4. Pain and tenderness localized in right side.

When the above symptoms are found in the order given, the condition need not be confused with anything else. There will be found tenderness and rigidity over McBurney's point. This is best detected by comparative bimanual palpation, when it will be found that the hand on the left side of the abdomen will sink much deeper than that on the right. Usually there is moderate to high leucocytosis, but this is confirmatory rather than diagnostic. In both typical and atypical cases, pneumonia, renal and pelvic disease should be excluded by a careful history and physical examination.

Perhaps the next most common condition found, where colored women are included in the clientele, is acute gonorrheal salpingitis. More often we find that the acute condition is an exacerbation of a chronic process. Usually the history and physical findings are so characteristic that little difficulty is encountered in arriving at a diagnosis. In the majority of our cases the following symptoms and signs are presented:

1. Acute pelvic pain, on one or both sides, coming on during or just after a regular menstruation.
2. Tenderness and rigidity of lower pelvis just above pubis.
3. Usually vomiting and constipation.
4. Tenderness and rigidity of the adnexa with or without palpable masses in the vaults or cul-de-sac.
5. Moderate fever, moderate leucocytosis.

Ectopic pregnancy may be confused with this condition on account of the location and similarity of the symptoms. In both conditions there is usually a history of previous pelvic infection and sterility. The location of the pain may be the same, but the pain of ectopic pregnancy is intermittent and griping, while that of salpingitis is continuous and aching in character. Ectopic comes on after a skipped or an anomalous period, and is associated with persistent metrorrhagia. Salpingitis is usually precipitated during or just after the regular menstrual period, which may be prolonged, due to the pelvic congestion at this time. In ectopic the tenderness and rigidity are most marked over the fruit sac, in acute salpingitis the greatest tenderness and rigidity is found in the lower pelvis in an area which can be covered by the hand laid transversely just above the pubis. This corresponds to the well defined limits of pelvic peritonitis so characteristic of this disease. Occasionally tenderness and rigidity are marked over the appendix also, but this usually represents an extension of the pelvic process and, since the outer instead of the inner coats of the appendix are involved, surgical interference is rarely necessary. Landmarks of an

*Read before the Seaboard Medical Society of Virginia and North Carolina at Newbern, N. C., December, 1923.

old gonorrheal infection may be present, but it is often impossible to find gonococci in the vaginal smear. In any case, severe pelvic pain coming on during or just after the regular menses with well defined tenderness of the adnexa is almost pathognomonic of pelvic infection.

Acute cholecystitis is a less common condition but more important because of its definite progressive stages and their complications, endangering health and life. A typical case will likely give a history of typhoid, pneumonia or previous biliary attacks and will present the following symptoms:

1. Pain in right hypochondrium which may or may not be referred to back or right shoulder.
2. Nausea and vomiting often marked.
3. Local sensitiveness.
4. Fever and leucocytosis.

The pain is not severe nor colicky unless the cystic or common duct be occluded. If jaundice is present the common duct is occluded. In the presence of infection the fever and leucocytosis is moderate, as long as the condition is confined to the gall-bladder. If the temperature is high, 103° to 106°, with sudden drops describing the temperature angle, the process has involved the cystic duct and rapid absorption is taking place through the rich lymphatic supply in this area. If, in addition to the chills and high fever, there is jaundice, the process has spread to the common duct, another area rich in its lymphatic supply. This is the type of case formerly called malignant malarial jaundice. The prognosis in these cases is invariably bad.

The most infallible symptom of gall-bladder disease is local sensitiveness on perpendicular percussion over the gall-bladder. It is also well to remember that pain, fever and leucocytosis are comparatively mild while the process is confined to the gall-bladder, whose lymphatics are meager and whose cavity is large. It is only when the process occludes the ducts which are rich in lymphatics that we find severe pain and great absorption.

Acute intestinal obstruction is often caused by a strangulated hernia, and the various abdominal rings should be carefully examined. A history of an abdominal operation or of an acute or chronic abdominal process would point toward inflammatory adhesions as the cause of the trouble. In the small intestine nearly three-fourths of the cases are caused by strangulation. In the large intestines over one-half the cases are due to intussusception. In children intussusception is the most common cause of obstruction. (It is characterized by the passage of bloody mucus from the rectum, by the sausage-shaped tumor along the colon, and occasional protrusion of bowel from rectum). Obstruction due to twists, stricture, or malignant growths usually involves the large intestine, low down, and may be detected by rectal examination. Marked tympany in the right inguinal region is considered by some a diagnostic symptom of obstruction due to Meckel's diverticulum.

Whatever the cause of the acute obstruction, the symptoms have certain common characteristics. These are:

1. Sudden acute abdominal pain, at first intermittent, later continual.
2. Obstinate constipation with inability to pass flatus.
3. Vomiting growing progressively worse to fatal termination.
4. Subnormal temperature.
5. Abdominal distention.
6. Early prostration.

The abdomen will be very tender in spots and we may get visible peristalsis or may palpate a mass. The constipation is absolute, is unrelieved by purgatives or enemas, and the patient is unable to expel flatus even in the early stages. Fecal vomiting appears early and is almost continuous. Prostration, or shock, when present, usually indicates a markedly disturbed circulation in the affected area, with the absorption of much toxic material. The prognosis in these cases is always grave.

Probably the most valuable points in differentiating acute intestinal obstruction from other abdominal conditions are the history of its onset, and the subnormal temperature. The absence of marked tenderness and rigidity and the character of the pain will differentiate it from peritonitis.

Ectopic gestation though not uncommon is considered one of the acute abdominal conditions most frequently overlooked, though the diagnosis could be made before rupture, in the vast majority of cases, if proper attention were given to the history and physical findings. Often there has been a period of sterility and former pelvic disease. There is usually a period of amenorrhea, with other symptoms of early pregnancy. Sharp cramping pains with soreness and discomfort in lower pelvis

XUM

are usually complained of before primary rupture.

The cervix is suggestive of pregnancy but exquisitely sensitive to motion. The uterus may be enlarged, but is empty. The growing fruit sac may be palpated beside, in front, or behind the uterus, displacing it. In the later months we will get signs of a late pregnancy with a uterus which is proportionately undeveloped, and separate from the tumor mass.

After rupture we get a persistent metrorrhagia. In some cases this begins with gestation. The bleeding is irregular in occurrence and amount, but often there is only a spotting coming on after the paroxysms of intermittent griping pain. The discharge may be of reddish brown color. Signs of collapse may come on at time of rupture, or as a result of severe internal hemorrhage.

Persistent metrorrhagia after a skipped or an anomalous period with intermittent griping pelvic pain usually means ectopic gestation, especially if in addition to this we get a history of former pelvic disease with a period of sterility. These findings will confirm the diagnosis:

1. Displacement of uterus by sensitive well defined mass.
2. Pelvic tenderness and rigidity most marked over mass.
3. Existing signs of pregnancy with cervix exquisitely sensitive to motion.
4. Moderate leucocytosis with diminution in hemoglobin and red count.
5. Temperature subnormal or slightly elevated.

The aspiration of the mass through the vagina will further aid in confirming the diagnosis.

Traumatic rupture of the abdominal viscera is a condition not frequently encountered, but is one that should not be lost sight of. The organs most commonly affected are the kidneys, spleen, liver, urinary bladder, and the intestines. These will not be considered separately at this time, but we will mention some outstanding features applicable to all. After a few hours the symptoms of the primary condition may be marked by a general peritonitis, or by a peritoneal irritation, due to the extravasation of blood into the peritoneal cavity. We commonly get:

1. A history of trauma, usually violent.
2. Profound shock coming on immediately, with subsequent marked improvement of the symptoms.
3. Sharp lancinating pain over organ involved.
4. Marked tenderness and rigidity of abdomen.
5. Tympany even in the presence of much extravasated blood.
6. Bloody urine in rupture of kidney or urinary bladder.

The marked improvement of symptoms coming on rapidly after the initial shock is a snare that too often causes a fatal delay. In rupture of any viscus shock is extreme and the patient looks almost cadaveric. They rally from this initial shock rather rapidly, as a rule, and on account of the marked improvement, we are prone to wait and defer surgical treatment until symptoms of shock from profuse hemorrhage or from peritonitis appear. Then it is often too late.

If the signs and symptoms are not clear enough to make a positive diagnosis promptly, it is better to do an early exploratory operation than to do a late post-mortem examination. Profound shock coming on immediately after violent abdominal trauma usually means severe injury to some important organ and it is better to open the abdomen to find out which one is involved than to wait until irreparable injury has been done.

Acute peritonitis, local or general, is never primary, but is always secondary to some other condition. If the patient is seen for the first time after peritonitis has set in, a careful history will often determine the primary cause. The signs and symptoms of any former condition are obscured by those of peritonitis which appear as follows:

1. Sudden onset with chill, fever, and quick wiry pulse.
2. Intense continued abdominal pain.
3. Abdominal tenderness, distention and board-like rigidity.
4. Posture—the patient lies motionless on back with thighs and legs flexed.
5. Early collapse. Short course.
6. Anxious expression with pinched features.

When the condition is produced by extension, it begins with local and gradually increasing pain, tenderness and rigidity. Vomiting and constipation become marked, the temperature rises and the pulse is tense and wiry. When it is caused by perforation, there is sudden intense pain with all the symptoms of shock. In the early stages there is always tympany, in

the later stages, after exudate has been poured out, we may get dulness over the site of the exudate.

Local peritonitis is difficult to detect and often the exploring needle is necessary for a diagnosis, but a history of a previous acute abdominal condition followed by continual intense abdominal pain with marked rigidity of the abdominal muscles, the typical decubitus and the hippocratic expression, makes a diagnosis of general peritonitis comparatively simple.

There are many other acute abdominal conditions whose symptoms could be emphasized with profit, but these few most commonly encountered have been presented as being most important. The questionable, difficult cases have not been touched upon, for the reason that many presenting *typical* signs and symptoms go on to a fatal termination for the lack of prompt diagnosis and treatment.

Lakeview Hospital.

SOME STOMACH GENERALIZING.*

By GEORGE A. CATON, M. D., Newbern, N. C.

It cannot be too clearly understood that the science of gastric diagnosis is the art of taking trouble, that it is at all times diametrically opposed to guess work, and that an accurate recognition of the nature of the complaint is the only possible basis for curative treatment.

It is a regrettable fact that, in all the special fields in medicine, so far as I am aware, there is not one where rank carelessness is more evident than in the diagnosis of gastric disease. However, I believe that, when it is understood how tedious and how long and exacting the work is, many men would be inclined to excuse us for our short comings in this regard. I have done some of everything pertaining to diagnostic work in all the common diseased conditions, but I have yet to find work in my professional duties which so thoroughly tires one out.

One reason why gastric diagnosis is so exacting and tiresome is because one so frequently has to hunt through the entire organism to find the cause of the complaint. Thus, continuous secretion of gastric juice, once regarded as a primary neurosis of the stomach, is now known almost always to be a mere complaining of the stomach that some other organ connected with it through the sympathetic nervous system is diseased—is suffering. Duodenal or gastric ulcer, or a chronically diseased appendix will cause such a secondary phenomenon as continuous secretion.

I was once asked to see a woman of forty who was thought to have indigestion due to defective vision. She was refracted and given glasses which she informed me had not seemed to relieve her indigestion. When the stomach tube was introduced, an obstruction was encountered near the cardiac end of the stomach in the æsophagus. This on further examination proved to be cancer which, no doubt, was engrafted on an old ulcer scar, as she had had gastric trouble for a long while.

Many cases are very difficult of diagnosis and these usually belong to families in whom stomach trouble has existed for generations. They are mostly functional nervous disorders, manifested by dull aching in the gastric region after certain articles of diet, or perhaps by a lump in the throat which will neither come up nor go down.

I have found that the highly nervous and unstable temperaments furnish a great number of these cases and, may I add, that the nervous types should not be lightly regarded for, while few of them lead to destruction of life even ultimately, they are the most devilishly harassing to the patient and no less so to the doctor. Such cases, dependent on simple constipation of course, are easily cured.

Again, we encounter a great many cases where gastric atony plays the major role and, although no demonstrable lesion of the stomach or adjacent organs of digestion may be found, the trouble is there nevertheless. Many of your patients of this class who have weak hearts, after indulging too-freely in certain foods, will have so-called acute indigestion and die.

Weak stomachs are inherited, just as are weak hearts, and lungs and livers. Many of these cases of so-called acute indigestion are due to hepatic lethargy or insufficiency. Gastroptosis, with dilatation of the stomach, atony, and inability on the part of the organ to empty itself in proper time, is a prolific cause of gastric distress, of fainting spells and of great apprehension, and, at times, of serious symptoms which drive the patient to the physician.

Ulcer of the stomach is common among gastric cases and demands a most careful examination after carefully obtaining the history.

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina, in Newport News, Va., December 4-6, 1923.

XUM

Any case of gastric trouble which complains of a sore spot in the pit of the stomach, which has vomited blood, or which has passed blood through the intestines, or has pain in the stomach when empty, absolutely demands careful examination with most modern equipment, in order to arrive at a conclusion for basis of intelligent treatment, for it is estimated that at least 75% of gastric cancers have their origin in old untreated gastric ulcers.

Not long since I had a case present himself for treatment. The man was in a dying condition from a perforation of the stomach resulting from one of these untreated ulcers. He died next day.

I have recently seen a case of near fatal hemorrhage from untreated ulcer, untreated because undiagnosed. It has been my observation that these cases just worry along, first because they do not appreciate the gravity of their disease, and second because the attending physician has not made a diagnosis nor has he referred the case to one doing high grade diagnostic work.

A case in point was a man about 65 years of age who informed me he had been treated for some gastric complaint. He looked really very ill and was advised to have a study made of the digestive apparatus. This was done chemically, physically and with the X-ray. On palpation there was found a much distended abdomen with apparently a great deal of liquid in the stomach. The stomach tube was introduced and the amount of fluid and decomposed food removed through the tube amounted to something like 6 quarts, parts of which, according to the patient's statement, had been there two weeks. An X-ray examination followed, the usual barium meal was given, and the characteristic chopped off appearance of the pylorus was in evidence.

A diagnosis of cancer of the pylorus was made, and the patient advised that operation was the only procedure which offered any hope whatever of cure or an arrest of the condition, and that probably operation would be of no value. He decided to grab at the straw and was accordingly opened up and a carcinoma the size of one's fist was found. This man had a very fat belly, hence the difficulty of palpating the tumor which was done after some time.

I have no criticism to make, but I do feel that cases which do not yield promptly to treatment in the hands of men who have had no special training in this field of work should be promptly referred. As I see it, it is a matter of saving life just as certainly as the giving of quinine for malaria or 606 in syphilis. The results might not be so uniformly good but many would be saved.

I should like to add a final word in regard to the treatment of gastric ulcer by means of the Roentgen ray as an adjunct to medical and dietetic treatment. I have used this method of treatment in several cases in the last year and have been gratified at the prompt results. I believe that there is a definite field for the X-ray in the treatment of gastric and other ulcers of the alimentary canal.

AN ANALYSIS OF ONE HUNDRED CONSECUTIVE ABDOMINAL OPERATIONS.*

By GEORGE H. REESE, M. A., M. D., P'etersburg, Va.

This paper is based on a series of one hundred consecutive abdominal operations performed in the Petersburg Hospital during a period ending November 27, 1923, for conditions acute, sub-acute and chronic. Sixty-five per cent of these were infected cases of varying degrees of virulence.

Some of these patients had been neglected or mistreated at home by themselves or others and, when admitted, were in wretched physical condition. All, however, were given prompt surgical attention when needed, regardless of any unfavorable prognosis.

Naturally, operations done under such circumstances tend to show a higher mortality than those performed on a series of carefully prepared or well selected cases. Yet, the practice in some localities of referring purely surgical patients to the medical ward, and condemning them to fight again their battles under non-operative treatment, when this already has failed at home, seems a negation of the uniform value of surgery in these grave abdominal conditions. Furthermore, it confirms the work of the procrastinator by testifying to the family, in the most eloquent way, that operative treatment in this class of cases is not most conducive to recovery.

The logic that surgery is good for an acute appendix, or for an interval appendix, or for a chronic pus tube, but must be shelved for

*Read at the meeting of the Southside Virginia Medical Association in Petersburg, December, 1923.

non-operative measures if the salpingitis is acute or sub-acute, or if the appendicitis is four days old, or if diffuse peritonitis has set in, is one that is hard for either the public or the medical profession at large to grasp. Even among the leaders of the surgical world, the practice in this field is not uniform, and this confusion doubtlessly leads many general practitioners, when confronted with a case of advanced appendicitis, for instance, to attempt in all sincerity, being fortified by high example, to treat the case by methods other than operative. Why shouldn't they if these cases are not to be operated on at once?

This is one side of the picture and it is not overdrawn.

On the other side, is that class of surgeons swayed by the belief that pus must be evacuated wherever found; certainly, unless the patient is improving, or else speedily changes for the better; simply opened and drained, if the condition of the patient or pathology is such as to permit of no further manipulation. To this class, I unhesitatingly adhere, though constantly bearing in mind the advantage of removing, at the initial operation, all removable pathology that the safety of the patient allows.

I am sure, as far as human estimate can be sure that, by following consistently this practice, at least in this series of cases I have reduced the impending mortality fully two-thirds.

On the other hand, if I had picked my cases and operated only on those of favorable prognosis, barring two deaths from gunshot wounds of the abdomen, which in civil life admit of no operative choice, I would have had no surgical mortality; yet without prompt operation, my total mortality, as indicated above, would doubtlessly have been tripled.

It is impossible for us in this locality, due to existing social and economic conditions, to coddle along cases of pelvic infection, for example, waiting for the most favorable time to operate. They usually come to us at their worst, physically and financially, and generally after the last straw of hope of relief through non-operative measures has been exhausted. At times, this is true of other abdominal conditions. It is too often a case of operate at once and give the patient a chance, or else undergo the certainty of shortly recording a mortality, under non-operative treatment.

In the series of cases here reported are found:

Fourteen cases of acute appendicitis—six with abscess formation.

One case of chronic appendicitis.

Six cases of ectopic pregnancy.

One case of gastric ulceration.

Four cases of gunshot wound of abdomen.

One Caesarean section.

One case of intussusception.

One strangulated hernia.

Fifteen cases of uterine fibroids.

Four cases of tuberculous peritonitis.

Four ovarian cysts.

Four cases of diffuse suppurative peritonitis.

Forty-four cases of salpingitis in various stages of pathology.

In these cases of salpingitis other pathology existed as follows:

Right ovary alone cystic in three.

Left ovary alone cystic in eleven.

Both ovaries cystic in ten.

These cysts were hemorrhagic in two.

Uterine fibroids in four.

Acute appendicitis by inflammatory extension in three.

Pelvic abscess other than tube-ovarian in five.

In the ovarian cysts, the right ovary was involved three times; the left once.

In the fifteen cases of fibrosis, the left ovary was cystic three times sufficiently to demand removal. Twice in multiple fibrosis pregnancy was encountered. One case was almost moribund from pernicious vomiting.

One chronic appendix was found buried in dense adhesions.

In the one case of Caesarean section, the right broad and round ligament, as well as the right ovary, was congenitally absent.

The case of intussusception presented a gangrenous appendix.

The four cases of diffuse suppurative peritonitis apparently resulted from two ruptured appendices and two ruptured pelvic abscesses.

One had a large fibroid on the right side of the uterus.

In the six ectopic pregnancies, the left tube was involved four times, the right twice. One case was complicated by fibroids and an acute appendix. One had a blood clot entirely filling the pelvis and distending the abdomen as high as the umbilicus, a temperature of 103, pulse

XUM

118, with an odor as rank as an ordinary post partum sapraemia.

The visceral injury in the four gunshot cases ranged from simple contusion of the ascending colon in one, to fourteen perforations of the small intestine, with three perforations of the omentum in another.

The irony of human effort is well illustrated here by the fact that the case of minor injury died of double pneumonia, following an exploratory incision, while the case of multiple perforation, following resection and suture of the remaining holes in the bowel, made an uneventful recovery.

The case of gastric ulcer was as clear a case as any text book ever recorded. After due confirmation, her abdomen was opened and an acutely inflamed stomach found, together with an undoubtedly pregnant uterus. About three months later the cause of her pain, tenderness, vomited blood and tarry stools was found to have been concentrated lye, turpentine, etc., recommended as ecbolics by solicitous friends and confidingly imbibed. She was delivered about six months later.

In all of these operations one ideal has been held supreme—that of making each operation a beneficial procedure to the patient. No attempt has been made in the majority of these cases to do stereotyped operations. Non-infective work may be standardized to the smallest detail; but each infected case is more of a law unto itself, and an accurate reading of this law as written by disease on each particular patient, and a due observance thereof is the foundation of all successful work in this kind of surgery.

The pre-operative and post-operative treatment in those cases permitting it has been simple.

With no involvement of the intestinal tract, regular diet is permitted until the meal before the operation. No purgative is given. An enema is ordered several hours before operation. One-fourth of a grain of morphine, with a one-hundred and fiftieth of atropine, is given one-half hour before the patient goes to the operating room.

Enough morphine is given post-operatively to keep the patient comfortable. This is a point insisted on but it is never allowed except in rare instances after the second or third day.

Water and liquid food are allowed when tolerated. If the patient is urgently in need of fluid, the usual procedure of hypodermoclysis is resorted to, followed by continuous proctoclysis, with tap water, or a mixture of glucose and soda solution, three per cent each. Tap water, as recommended by Trout, seems to be more readily absorbed than normal saline, and can have no deleterious influence on involved kidneys, which already may be a part of the patient's pathology, or may follow etherization. It is recommended that every fourth pint be of salt solution, in order not to deplete too greatly the bodily chlorides.

In shock, saline, adrenalin, and caffeine, have given the best results.

In peritonitis, the treatment is Fowler's position, starvation, morphinization, and hydration by the Murphy drip with tap water, or by glucose and soda solution. Feeding is resumed as soon as gas or feces begin to pass.

In cases requiring drainage, the principle of copious early drainage, quickly dispensed with, has been followed. In no case has the early removal of drainage been a cause for regret. It is generally conceded that, after twenty-four or forty-eight hours, any form of drainage merely drains the sinus formed by itself. As a foreign body, it is an irritant and left too long causes unnecessary pain and undue adhesions, with all the malign consequences of both. All patients who have come under my observation express their gratitude when drainage is removed. There seems to be little tendency for the abdominal wound to close in these acute conditions, as long as there is anything in the drainage area necessitating evacuation.

Three of these cases developed post-operative ileus with fecal vomiting. As it was practically certain that they were due to inflamed bowels or nerve paralysis from toxins, rather than from constricting adhesions, they were given the same treatment that is demanded by any other form of pyogenic peritonitis. All three, under morphine starvation and the Murphy drip, promptly subsided. The first was tried on high enemas and repeated doses of pituitrin, with no favorable result. Morphine produced almost immediate improvement and final recovery. It would be interesting to know how many of these cases are predisposed to, or produced by trauma, exposure to air, sponging and other vitiating influences during operation, by attempts at purgation and other injudicious after-treatment. I am inclined to think that none of these cases

would have developed, had they been kept more thoroughly under the influence of morphine until assured that all peritonitis had subsided.

As to morbidity, only one patient has had persistent post-operative pains. This has apparently been due to a cystic ovary which I punctured and left, instead of removing.

The operative mortality in this series of cases has been three. Two of the four cases of gunshot wounds of the abdomen died: one of peritonitis; the other of double pneumonia, presumably from the anaesthetic.

One case of diffuse suppurative peritonitis died the morning following incision and drainage. This patient was urged to submit to operation a month before, but refused until thoroughly septic.

Two cases of tubercular peritonitis have subsequently died, and one case of uterine fibroids dropped dead shortly after returning home.

All the others, as far as I am able to determine, are doing well.

THE DIAGNOSIS OF CANCER FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.*

By C. P. OBENSCHAIN, M. D., New Hope, Virginia.

The name, cancer, as used in this paper is understood to include all malignant growths, ulcers and tumors to which the human body is subject. This is not a long or scientific differential diagnosis, but is merely the diagnosis in the rough, and the methods of arriving at a conclusion of malignancy as used by others and from my own experience. In the rounds and activity of the general practitioner the diagnosis is the bugbear, and while important in all diseases, in cancer it is vital.

How often must we look for malignancy? This can be answered by stating all the time. It is estimated that after the age of thirty, five per cent of all deaths in the United States are caused by cancer.

Cancer shows a very definite predilection for certain ages. The majority of cases occur between the ages of fifty and sixty and the physician must be especially watchful in patients of this age. But very few cases occur under the age of twenty.

It must be kept in mind that this disease is far more frequent in women than men. This fact is to be attributed to the large number of cancers occurring in the uterus and breast, there being no corresponding organs in men similarly attacked. However, the large number of cancers of the stomach among men helps to swell the male proportion, but by no means is cancer of this organ peculiar to men. In men over thirty-five years of age cancer occurs in one out of eleven; among women over this age one out of eight have this disease. So much for the frequency, this is certainly enough to make us alert at all times.

The symptomatology of cancer depends so greatly on its location that it cannot be taken up in detail in a paper of this kind. We shall review certain general features and then some of the symptoms when occurring in special locations.

In the majority of cases the "lump" is the first symptoms to be noticed by the patient, excepting the growths in the internal organs. Even here the tumor may be the first complaint of the patient, but most usually a disturbance of function is the first symptom noticed by both the patient and the physician. A few illustrations may here be given. Thus, in carcinoma of the esophagus the first symptom is dysphagia; in carcinoma of the stomach there is a disturbance of gastric digestion or symptoms of pyloric obstruction; in malignant disease of the head of the pancreas or in the bile duct obstructive jaundice occurs; when in the intestines there will be chronic intestinal obstruction; in the rectum we have constipation most usually, and bleeding and discharge from the anus. Hemorrhage from carcinoma of many organs often first helps us to make the diagnosis, this being especially true of the bladder and uterus.

The character of the tumor or swelling often gives us information in cancer of internal organs, there being a certain firmness or nodular form which belongs to cancer alone. This is especially true in cancer of the liver. The tumor or growth is of greatest importance in all external affections where it can be felt or seen.

To simplify matters, different portions of the human anatomy will be dealt with separately. At this point I wish to state that the general practitioner is not at so great a disadvantage as his forefathers when it comes to making a diagnosis in malignant disease. There is no greater help to us than the group of

*Read at the meeting of the Augusta County Medical Association, in Staunton, February 6, 1924.

XUM

specialists to which we all have access. As the treatment in the most of cases is best left to the specialist, it is well to have one or even more to help with the diagnosis, especially when in doubt. When the name specialist is used here, it means the ethical physician who has specially prepared himself along certain lines, and who at all times keeps the family physician posted in regard to the case in question and its treatment, and returns the patient to the family physician, whose reputation he has not allowed to be jeopardized.

We shall begin with the skin. In this there are many times pre-cancerous lesions, such as moles, warts, birth marks, small or large growths, and other pigmentations, which have been with the patient most of his life. These often take on rapid growth at middle life and alarm the patient causing the physician to be consulted. It is not well here for the general practitioner to wait for a positive diagnosis but to treat all such as malignant and make the diagnosis later from a section in the hands of the specialist, this more for the sake of prognosis than for treatment. Any ulcer for which we can give no reason should be regarded as malignant if it persists too long, keeping in mind of course the ulcers of diabetes, varicose veins, syphilis, lupus vulgaris, and eczema. Syphilis and lupus are both diseases of youth, seldom appearing after the thirty-fifth year of age. If there is an ulcer on the lower lip of a man forty years or older, which does not improve immediately, it is nearly always epitheliomatous. Epithelioma of the genitals is not to be confounded with chancre, gumma, or syphilitic tubercles of that region. The pains of cancer; its prolonged duration; its occurrence in an aged subject, with the general history of the case, will usually point to the truth. If the skin lesion is sarcoma, it is still more important to make the diagnosis early, as it runs its course rapidly, occurs somewhat earlier in life, and has a tendency to multiply in near or distant parts of the body.

Carcinoma of the breast most usually occurs in women. In fact, it occurs so frequently that we are always suspicious of any lump or growth in the soft tissues of a woman's breast, our suspicions being doubly justified if the patient is over thirty-five. The general practitioner is not doing his duty if he waits here to make a diagnosis positive. The method of handling these cases is familiar to us all. The writer has seen one case of sarcoma of the breast in a man. This started from a small pigmentation under the left nipple which had been there all the man's life and just began to grow when he reached the age of sixty-five. Operation was refused until too late and, in spite of the use of X-rays, Coley's fluid, etc., the cancer proved rapidly fatal.

The family physician has cases come to him with symptoms of indigestion, rapid loss of weight, vomiting, the vomitus being often dark with coffee ground granules separating to the bottom of the vessel, history perhaps of ulcer of the stomach, peculiar yellowish color of the skin, most usually a tumor in the stomach region. This is carcinoma of the stomach. A blood count will eliminate pernicious anemia, it rarely being low in cancer as in this disease. A leucocytosis is in favor of cancer. An examination of the gastric contents in the hands of an expert will help very much. An exploratory operation will make the diagnosis certain and, if done early enough, will give the surgeon a chance to remove the trouble, which in true malignancy is the only hope the patient can have.

In cancer of the liver there is always a tumor, a tumor which in thin persons is easily felt and which has a peculiar nodular feel. Jaundice does not usually come until the last half of the disease, unless the bile passages are affected at first.

In cancer of the reproductive organs in women a positive diagnosis can rarely be made by the family physician until the chances for the best treatment have passed. However, if we have a case in which bleeding starts in a woman who has ceased to menstruate, and in which a vaginal examination shows enlargement of the cervix, or the womb, or a tumor, we are reasonably certain that we have cancer to deal with.

We shall now sum up the most important things for the family physician to keep in mind, when watching for or dealing with malignancy:

1. The diagnosis is important, as the treatment is most effective if given while the supposedly small troubles are still small.

2. The usual procedure of our courts should be reversed when dealing with the suspicion of malignancy and the offender under question considered guilty until it is proven innocent, and treated accordingly.

3. The chief duty of the general practitioner in all things dealing with health is education, this being especially true in malignancy, so that his services will be sought early and the diagnosis made in time. A late diagnosis helps with the prognosis and not with the treatment.

4. When in doubt, the general practitioner should seek immediately that great modern adjunct to the family doctor, the specialist.

5. The importance of all this can be exemplified no better than by giving the statistics. Of all persons afflicted with true malignancy, eighty-five per cent eventually die therefrom.

SUGGESTIONS IN PALPATING THE ABDOMEN.

By W. R. AYLETT, M. D., Newport News, Va.

In palpating the abdomen I have found it of great advantage to have the patient to rest his forehead on the edge of the examining table and bend forward until his body and thighs are at a right angle, at the same time relaxing the abdominal muscles as much as possible.

When on a table flat of his back, the abdominal contents, such as gall-bladder, kidneys (if floating), and tumors, tend to rest against the posterior abdominal wall and hide in a maze of intestines, omentum and other organs. In the position I suggest, they fall against the anterior abdominal wall, and often can readily be palpated. In fact, the shy tumors seem to crowd forward and, as it were, try to eat out of your hand.

Another method of palpating, especially for chronic appendicitis, is to have the patient rest flat of his back, press deeply with your fingers of both hands and pull outward until you press firmly against the inner surface of the ilium.

The peritoneum, after covering the caecum and appendix (often they are only partially covered) runs to the inner surface of the ilium. The nerves in chronic appendicitis are highly sensitized and when caught between the fingers and hard surface of the ilium produce an acute pain. When in the ordinary examination, downward pressure is made, these nerves rest against a distended caecum, literally an air cushion, and pain is hard to produce.

When pinched between the hard surfaces as I suggest, it is rare that the patient will not give vent to an "ouch."

In my experience, it is by far the most constant symptom of chronic appendicitis.

I have never seen this sign mentioned in textbook or magazine and it is original with me. In my experience it has proven of such value that I offer it to the profession.

3201 *West Avenue.*

Analyses, Selections, Etc.

The Gall-Bladder: Its Past, Present and Future.

In the Mutter Lecture of the College of Physicians, Philadelphia, December 7, 1923, J. E. Sweet, M. D., Professor of Surgical Research, University of Pennsylvania, in the *past* of the gall-bladder has reviewed its embryology, pointing out as the striking developmental fact that the gall-bladder arises as an independent unit from the same group of ancestral cells as give rise to the stomach, duodenum, pancreas and liver.

Under the *present* of the gall-bladder, the author reviews the gross and microscopical anatomy of the gall-bladder, emphasizing particularly the unusual blood-and lymph-supplies of the organ and the existence of two valve-like structures at the outlet of the gall-bladder. The writer also calls especial attention to the existence along the bile-ducts of out-pouchings of the mucosa, known to the old anatomists, but apparently forgotten by the modern generation, which seem to possess the functional possibilities of accessory gall-bladders.

In the *future* of the gall-bladder, is discussed the possible functions of the organ. Experiments upon the relation of the gall-bladder to the cholesterol of the blood are cited.

The author's conclusions are summed up in the following paragraph: "The manner of origin and development of the duct system of the liver indicates, I believe, that the membrane lining this system may be possessed of powers of absorption; the complex structure of the gall-bladder, the rich blood supply, the unusual lymphatic supply, point to an absorptive function. The position of the gall-bladder, the provision of two valvular structures at its outlet, which are manifestly designed to permit inflow and to hinder outflow, lead me to the conclusion that under normal conditions whatever passes into the gall-bladder through the cystic duct, never passes out again through the cystic duct." The bile contained in the gall-bladder is evidently absorbed, and in this pro-

XUM

cess of absorption it would see that the cholesterol esters of the blood are influenced.—(*International Clinics*, March, 1924).

Neurosyphilis in the Aged—A Study of 19 Cases of Senile Neurosyphilis Occurring in a Series of 2,175 Cases of all Types of Nervous Syphilis.

A. E. Bennett, in *Arch. Neurol. and Psychiat., Chicago*, 1923, *XXXII*, 324, says that cerebrospinal syphilis and tabes dorsalis developing in senility (60 years or older) are rare because in most cases the chancre is contracted in early life. The incidence is approximately 0.5 per cent of all neurosyphilis cases. Aged patients suffering from cerebral arteriosclerosis, senile deterioration, or nephritis are at times mistaken for neurosyphilitics. Cases developing after 60 years usually have the initial sore in middle life. In a few cases there appears to be a long period of latency, then, in the metamorphosing stage, this immunity is broken down, probably as a result of the degenerative processes of age. Then the neurosyphilitic involvement becomes apparent and as a rule does not respond to treatment, but is rapidly fatal.

General paralysis developing in senility is rare and practically never develops after 65 years. General paralysis in seniles simulates closely the dementia of senile deterioration.

Francis X. Dercum, discussing the above paper, found that syphilis acquired in middle life is very resistant to treatment, both the gummatous and parenchymatous forms. He cited a case in which the initial lesion was said to have been contracted 42 years before onset of symptoms.

Can Changes in the Central Nervous System be Demonstrated in the Early Stages in Patients with Positive Spinal Fluid Reaction by Clinical Methods?

A. Memmesheimer says that recent investigations have shown that syphilitic infection will involve the central nervous system quite early. The spinal fluid reaction often coincides with the clinical findings. Changes in the N. octavus are well known.

In judging of the lumbar puncture, the Wassermann reaction, Pandy, Nonne I, and the goldsol reactions are of importance. The author examined 10 cells. He considered those cases completely positive where the Wassermann reaction in the spinal fluid is positive, or where the Wassermann reaction is slightly positive and all other reactions suggesting pathologic conditions likewise positive.

A group of 46 cases with positive spinal fluid reaction, where the infection dated back to two years or less, was examined. In four cases where primary syphilis three weeks old existed (one seven weeks old) bad headaches were found. The eyes showed hyperemic papillae, and in two cases Haenel reaction. No definite signs of neuritis were demonstrated—in 24 cases where the infection had existed half a year, 8 of which were completely positive, showed pathological changes of the eye 17 times (71 per cent). In some positive Haenel, in others slow light reaction, and irregular pupils, papillipides, neuritides, and in two typical engorgement papillae were observed. A group with infections one-half to one year old, showed pathology of the eyes in 80 per cent. In 5 of them severe optic nerve disease existed with inflammation. In another group of 8, where the infection dated back one to two years, pathological state of the eyes was found in 62 per cent. It was shown that in most cases of primary and early symptoms with positive spinal fluid reactions changes in the function or the background of the eye will be found which suggest involvement of the central nervous system.—(*Deutsche med. Wchnschr.*, Berlin, 1923, XLIX., 1180).

Routine Wassermann Tests in a Thousand Nervous and Mental Cases.

C. S. Bluemel, in an article in *Colorado Med., Denver*, 1923, XX., 310, presented briefly the results of the Wassermann test run on the blood serum of one thousand consecutive nervous and mental cases. The results were as follows:

Positive, plus four, reactions	29
Weaker positive reactions	115
Negative reactions	856

Among the 856 patients with negative reactions, 13 gave a positive history of syphilis, while 35 others had neurosyphilis as evidenced by clinical symptoms or positive spinal fluid findings. Thus this group of 856 patients with negative Wassermann reactions contains only 808 patients who had never had syphilis.

The 29 patients with positive, plus four, reactions were all undoubtedly syphilitic.

Among the 115 patients with weaker positive reactions 44 were shown to be syphilitic, either by clinical symptoms, a positive history of syphilis, or positive spinal fluid findings. Among the remaining 71 of this group 38 were

thought to be free from syphilis, although many of them showed a weak positive Wassermann reaction on repeated examination. The remaining 33 of the group were probably syphilitic, as they showed rather strong reactions on the blood.

Two hundred and eighty-four patients had Wassermann tests run on the spinal fluid as well as the blood. The value of this test is demonstrated by the fact that it showed the existence of syphilis in 36 patients with negative or doubtful reactions on the blood.

Among 1,000 patients examined, 121 were found by history, laboratory tests, or clinical symptoms, to be syphilitic.

Proceedings of Societies

The Lee County Medical Society

Held its last meeting at Pennington Gap, Va., April 15, with Dr. C. C. Pearce, Pennington Gap, as president, and Dr. P. D. Pence, St. Charles, as secretary. It was decided that instead of meeting quarterly, as heretofore, the Society would hold its meetings on the second and fourth Monday nights of each month, the place being designated at each previous meeting. Election of officers for the ensuing year resulted in naming Dr. T. B. Ely, of Jonesville, president, and Dr. J. B. Muncy, of Jonesville, secretary-treasurer.

The Warren, Rappahannock and Page Counties Medical Society,

Of which Dr. D. M. Kipps and Dr. E. L. Grubbs, both of Front Royal, are president and secretary-treasurer, respectively, held its quarterly meeting at Front Royal, on April 8th, with one of the largest attendances since its organization, ten years ago. Papers were read and discussed by visiting doctors from Washington, D. C., Richmond, Harrisonburg and Winchester, and the meeting was a most interesting one.

The Southwestern Virginia Medical Society

Held its semi-annual meeting in Radford, March 20, and 21, with the usual good attendance and interest which this Society attracts. A banquet was held on the opening evening and on the second day, the staff of St. Albans Sanatorium tendered a luncheon to the members and visitors. The program included a number of interesting papers, among them a symposium on Diabetes, which was discussed by Drs. K. D. Graves, F. H. Smith, Gibson Davis, and H. H. Trout. The next meeting is to be held at Marion on September 11 and 12. Dr. S. S. Gale, and Dr. E. G. Gill, both of Roanoke, are president and secretary-treasurer, respectively. The following new members were elected: Drs. Chas. A. Young and Booker Lee, Roanoke; A. E. Holmes, Mt. Regis Sanatorium, Salem; Nat. Copenhaver, Bristol; J. B. McKee, Plasterco; S. A. Tuck, Elliston; J. Gibson Davis, Christiansburg, and T. C. Harris, Radford.

The Russell County Medical Society

Met April 10, with Dr. C. B. Greear, Honaker, the president, in the chair. There was a good attendance and the papers read by Dr. D. B. Lepper, on Pertussis, and by Dr. C. B. Greear, on Backaches of Known and Unknown Origin, were freely discussed by the members. It was resolved that the Society should hold its June meeting at Castlewood, and that Drs. O'Connor Cox, J. W. Greear and L. W. Newland, all of St. Paul, Va., be invited to attend the meeting. The Tazewell County doctors are to be invited to attend the September meeting at Lebanon. The fee of $1 was assessed each member. The secretary, Dr. David B. Lepper, of Lebanon, was instructed to invite all eligible doctors in the county to join.

Russell County doctors report health conditions somewhat distressing when viewed from a remunerative standpoint. The progressive health officer of the County, Dr. Lepper, reports that there have been but few cases of typhoid for the year to this time.

The South Piedmont (Va.) Medical Society,

At its meeting held in Lynchburg, April the 15th, elected the following officers for the ensuing year: President, Dr. Ray A. Moore, Phenix; vice-presidents, Drs. F. O. Plunkett, Lynchburg, C. L. Bailey, Danville, J. D. Hagood, Scottsburg and L. H. Hoover, Clarksville; secretary-treasurer, Dr. George A. Stover (re-elected), South Boston. This meeting was well attended and a number of interesting papers were presented.

The Virginia Society of Oto-Laryngology and Ophthalmology

Held its fifth annual meeting in Lynchburg, April 30, with a large attendance and much interest was manifested in the work of the Society. Dr. J. A. White, Richmond, presided

XUM

and Dr. E. U. Wallerstein, Richmond, was in his accustomed place as secretary. Eleven new members were admitted, bringing the total membership to seventy. The invited guests, Dr. Ross H. Skillern, of Philadelphia, and Dr. Harry Friedenwald, Baltimore, gave most instructive and interesting papers. The program included a number of papers of merit, among them a symposium on tonsillectomy, which was discussed by Drs. Clifton Miller and James Morrison. Between the morning and afternoon sessions, the Lynchburg members tendered the visitors a luncheon at the Oakwood Country Club. It was decided to hold the next meeting in Winchester, during apple-blossom season in early May, and the following officers were elected: President, Dr. James Morrison, Lynchburg; vice-president, Dr. H. S. Hedges, Charlottesville; secretary-treasurer, Dr. E. U. Wallerstein (re-elected), Richmond.

Dr. J. L. Alexander, Staunton.
Dr. A. F. Bagby, Richmond.
Dr. K. S. Blackwell, Richmond.
Dr. E. C. Bryce, Richmond.
Dr. A. A. Cannaday, Roanoke.
Dr. R. F. Compton, Charlottesville.
Dr. F. M. Dillard, Alexandria.
Dr. C. S. Dodd, Petersburg.
Dr. John Dunn, Richmond.
Dr. Courtney Edmond, Clifton Forge.
Dr. Meade Edmunds, Petersburg.
Dr. Thomas W. Edmunds, Danville.
Dr. M. R. Faville, Roanoke.
Dr. Guy Fisher, Staunton.
Dr. C. A. Folkes, Richmond.
Dr. C. H. Fowlkes, Richmond.
Dr. J. R. Garrett, Roanoke.
Dr. E. T. Gatewood, Richmond.
Dr. E. G. Gill, Roanoke.
Dr. W. W. Gill, Richmond.
Dr. James R. Gorman, Lynchburg.
Dr. F. M. Hanger, Staunton.
Dr. H. S. Hedges, Charlottesville.
Dr. Homer Henkel, Staunton.
Dr. Emory Hill, Richmond.
Dr. W. S. Hodnett, Richmond.
Dr. Marshall H. Hood, Portsmouth.
Dr. T. E. Hughes, Richmond.
Dr. J. S. Hume, Norfolk.
Dr. C. P. Jones, Newport News.
Dr. J. W. C. Jones, Newport News.
Dr. L. Leroy Jones, Portsmouth.
Dr. Francis H. Lee, Richmond.
Dr. W. L. Mason, Richmond.
Dr. S. E. Massey, Roanoke.
Dr. G. M. Maxwell, Roanoke.
Dr. Hunter H. McGuire, Winchester.
Dr. Frank McNeer, Roanoke.
Dr. Wm. F. Mercer, Richmond.
Dr. Thos. D. Merrick, Richmond.
Dr. Clifton M. Miller, Richmond.
Dr. E. R. Miller, Harrisonburg.
Dr. R. E. Mitchell, Richmond.
Dr. W. C. Moomaw, Petersburg.
Dr. James Morrison, Lynchburg.
Dr. Wm. J. Olds, Front Royal.
Dr. Wm. Patterson, Richmond.
Dr. E. W. Peery, Lynchburg.
Dr. Thos. E. Peery, Bluefield, W. Va.
Dr. F. W. Poindexter, Newport News.
Dr. J. F. Ragland, Petersburg.
Dr. J. B. Rawlings, Staunton.
Dr. David L. Rawls, Suffolk.
Dr. George A. Renn, Norfolk.
Dr. L. A. Robertson, Danville.
Dr. J. T. Shelburne, Critz.
Dr. Harry B .Stone, Roanoke.
Dr. E. L. Sutherland, Charlottesville.
Dr. B. W. Switzer, Lexington.
Dr. Neilson Turner, Richmond.
Dr. George J. Tompkins, Lynchburg.
Dr. E. U. Wallerstein, Richmond.
Dr. F. A. Ward, Suffolk.
Dr. T. B. Weatherly, Richmond.
Dr. Beverly R. Wellford, Richmond.
Dr. Jos. A. White, Richmond.
Dr. Mortimer Williams, Roanoke.
Dr. F. D. Willis, Newport News.
Dr. R. H. Wright, Richmond.
Dr. Chas. A. Young, Roanoke.

The Public Health Association of Virginia

Was held in Richmond, April 22 and 23, with Dr. Powhatan S. Schenck, Norfolk, as president, and Dr. L. J. Roper, Portsmouth, secretary. A number of interesting papers were read and most of the members staid over for the annual meeting of the State Board of Health on the following day. Officers of the Public Health Association of Virginia elected for the coming year are: President, Dr. Wm. S. Keister, Charlottesville; Vice-presidents, Mr. Aubrey H. Straus, State Bacteriologist, Richmond, and Dr. W. R. Culbertson, Norton; secretary-treasurer, Dr. L. J. Roper (re-elected), Portsmouth, and assistant secretary-treasurer, Miss Blanche Webb, head of the King's Daughters' nurses of Norfolk.

The Truth About Medicine

In addition to the articles enumerated in our letter of February 26th, the following have been accepted:

Parke, Davis & Co.:
- Apothesine
- Apothesine Solution
- Apothesine Hypodermic Tablets 0.08 Gm. (1¼ Gr.)
- Apothesine and Adrenalin Hypodermic Tablets
- Apothesine and Adrenalin Hypodermic Tablets (R "B")
- Apothesine and Adrenalin Hypodermic Tablets Cylindrical (for pressure anesthesia)
- Apothesine Ointment
- Pituitrin "S" (Surgical)

E. R. Squibb and Sons:
- Cod-Liver Oil—Squibb

United States Standard Products Co.:
- Acne Vaccine
- Gonococcus Vaccine
- Pertussis (Whooping Cough) Vaccine
- Staphylococcus Combined Vaccine

Streptococcus Vaccine
Typhoid Vaccine
Typhoid Paratyphoid Vaccine Combined
Acne Vaccine Combined
Normal Horse Serum
Diphtheria Antitoxin, Refined and Concentrated
Diphtheria Toxin-Antitoxin Mixture (0.1 L+)
Diphtheria Toxin for Schick Test and Control
Tetanus Antitoxin

NEW AND NONOFFICIAL REMEDIES.

Patch's Flavored Cod-Liver Oil.—Cod-liver oil containing 0.5 per cent of essential oils as flavoring, and having a vitamin potency so that 0.002 Gm. per day is adequate to promote the growth of young albino rats. For discussion of the actions and uses of cod-liver oil, see Useful Drugs. The dose is not more than 4 c.c. (1 fluidrachm) 3 times a day. For children not more than 2 c.c. (30 minims) 3 times a day. E. L. Patch Co., Boston.

Vitalait Culture Bacillus Acidophilus.—A pure culture of bacillus acidophilus in vials each containing about 7 c.c. It contains not less than three hundred million of viable organisms (B. acidophilus) per cubic centimeter at the time of sale. For a discussion of the actions and uses of cultures of B. acidophilus, see Lactic Acid-Producing Organisms and Preparations, Jour. A. M. A., Sept. 8, 1923, p. 831. The usual dosage is the contents of one vial diluted with water and followed by a quantity of sugar of milk. The culture is distributed by the manufacturer only and is sent by mail. The Vitalait Laboratory of California, Pasedena, Calif. (Jour. A. M. A., March 1, p. 717).

Apothesine.—Diethyl-amino-propyl cinnamate-hydrochloride. Apothesine is a local anesthetic of the procaine rather than the cocaine type, that is, it belongs to that type which, while effective for injection anesthesia (especially when combined with epinephrine), is relatively inefficient when applied to mucous membranes. It is rather slower in action than procaine. Its absolute toxicity is less than that of cocaine, but about twice that of procaine. It is employed for infiltration injection, nerve blocking, intraspinal injection, pressure anesthesia, oral administration as a palliative measure, for post operative and persistent vomiting and pain of gastric ulcer. As a local anesthetic, apothesine is used in 0.5 to 2 per cent solution, generally with epinephrine and sterile water or physiological solution of sodium chloride. Apothesine is marketed in substance and also in the following forms: Apothesine solution, 1.5 per cent; apothesine hypodermic tablets, 0.08 Gm.; apothesine and adrenalin hypodermic tablets (apothesine 0.04 Gm.; adrenalin 0.00004 Gm.); apothesine and adrenalin hypodermic tablets (apothesine 0.3 Gm.; adrenalin 0.0003 Gm.); apothesine and adrenalin hypodermic tablets cylindrical (apothesine 0.01 Gm.; adrenalin 0.000025 Gm.); apothesine ointment (apothesine 10 per cent; adrenalin 1:60,000, and menthol 0.5 per cent). Parke, Davis & Co., Detroit. (Jour. A. M. A., March 8, 1924, p. 793).

Butesin Picrate.—Trinormalbutylparaminobenzoatedinitrophenol.—A compound consisting of one molecule of trinitrophenol (picric acid) and three molecules of normal butyl ester of 4-aminobenzoic acid. Butesin picrate combines the anesthetic action of butesin with the antiseptic properties of trinitrophenol (picric acid). An aqueous solution of 1:1,400 produces immediate and complete anesthesia of the eye, which lasts from ten to twenty minutes. Butesin picrate is used in the treatment of burns, ulcers and other denuded, painful lesions of the skin. For use, a one per cent butesin ointment is supplied by the manufacturer. The Abbott Laboratories, Chicago.

Normal Horse Serum.—A normal horse serum (see New and Nonofficial Remedies, 1923, p. 281), marketed in packages of one syringe containing 10 c.c.; also in packages of one syringe containing 20 c.c. United States Standard Products Co., Woodworth, Wis. (Jour. A. M. A., March 15, 1924, p. 876).

Dibromin.—Dibromobarbituric acid.—Dibromin is an antiseptic and germicide proposed for use in solution as an irrigating fluid and wet dressings, for flushing cavities, irrigating infected wounds and for saturating gauze packings. Dibromin is claimed to be practically free from irritating or toxic properties in the concentrations required for therapeutic use. Solutions of 1:10,000 (6 grains to one gallon) or stronger are used. Dibromin is marketed in six grain capsules. Parke, Davis & Co., Detroit.

Acne Vaccine.—An acne vaccine (see New and Nonofficial Remedies, 1923, p. 302), marketed in packages of one 10 c.c. vial, each c.c. containing 40 million killed bacteria. United States Standard Products Co., Woodworth, Wis.

Gonococcus Vaccine.—A gonococcus vaccine (see New and Nonofficial Remedies, 1923, p. 304), marketed in packages of one 10 c.c. vial, each c.c. containing 1,000 million killed gonococci. United States Standard Products Co., Woodworth, Wis.

Pertussis (Whooping Cough) Vaccine.—A pertussis bacillus vaccine (see New and Nonofficial Remedies, 1923, p. 308), marketed in packages of one 10 c.c. vial, each c.c. containing 3,000 million killed pertussis bacilli. United States Standard Products Co., Woodworth, Wis.

Typhoid Vaccine.—A typhoid vaccine (see New and Nonofficial Remedies, 1923, p. 314), marketed in packages of three 1 c.c. vials, containing 500 million, 1,000 million and 1,000 million killed typhoid bacteria, respectively. United States Standard Products Company, Woodworth, Wis.

Typhoid Paratyphoid Vaccine (combined).—A typhoid vaccine (see New and Nonofficial Remedies, 1923, p. 314), marketed in packages of three 1 c.c. vials, the first dose containing 500 million killed typhoid bacteria, 375 million killed paratyphoid A and 375 million killed paratyphoid B bacteria, the second and third doses each containing 1,000 million killed typhoid bacteria, 750 million killed paratyphoid A bacteria and 750 million killed paratyphoid B bacteria. United States Standard Products Co., Woodworth, Wis. (Jour. A. M. A., March 22, 1924, p. 967).

Staphylococcus Combined Vaccine.—A staphylococcus vaccine (see New and Nonofficial Remedies, 1923, p. 310), marketed in packages of one 10 c.c. vial, each c.c. containing 1,000 million killed staphylococcus albus and 1,000 million killed staphylococcus aureus. United States Standard Products Co., Woodworth, Wis.

Streptococcus Vaccine.—A streptococcus vaccine (see New and Nonofficial Remedies, 1923, p. 312), marketed in packages of one 10 c.c. vial, each c.c. containing 400 million killed streptococci. United States Standard Products Co., Woodworth, Wis.

Acne Vaccine Combined.—A mixed bacterial vaccine (see New and Nonofficial Remedies, 1923, p. 318), marketed in packages containing one 10 c.c. vial, each c.c. containing 40 million killed acne bacilli and 1,000 million killed staphylococcus albus. United States Standard Products Co., Woodworth, Wis.

Diphtheria Antitoxin, Refined and Concentrated.—A refined and concentrated diphtheria antitoxin (see New and Nonofficial Remedies, 1923, p. 283), prepared according to a modification of Banzhaf's method, marketed in syringes containing 1,000, 3,000,

XUM

5,000, 10,000 and 20,000 units, respectively. United States Standard Products Co., Woodworth, Wis.

Diphtheria Toxin-antitoxin Mixture, 0.1L+.—A diphtheria toxin-antitoxin mixture (see New and Nonofficial Remedies, 1923, p. 284), each c.c. constituting a single dose and marketed in packages of 3 vials, each containing 1 c.c.; in packages of 30 vials, each containing 1 c.c. and in packages of one vial containing 30 c.c. United States Standard Products Co., Woodworth, Wis.

Diphtheria Toxin for Schick Test and Control.—A diphtheria immunity test (see New and Nonofficial Remedies, 1923, p. 323), marketed in packages containing a vial with undiluted diphtheria toxin and physiological solution of sodium chloride for dilution. As a means of control there is also supplied diphtheria toxin which has been heated to destroy the exotoxins. The product is marketed in packages containing an amount sufficient for fifty tests; also in packages containing an amount sufficient for one hundred tests, but the strength of the toxin is such that the dose is 0.1 c.c. United States Standard Products Co., Woodworth, Wis.

Tetanus Antitoxin.—A concentrated tetanus antitoxin (see New and Nonofficial Remedies, 1923, p. 284), prepared according to the Banzhaf method. Marketed in syringes containing 1,500, 5,000 and 10,000 units. United States Standard Products Co., Woodworth, Wis. (Jour. A. M. A., March 29, 1924, p. 1047).

PROPAGANDA FOR REFORM.

Citrophan.—This is a "fat cure," exploited to the medical profession and the public by the Gotham Corporation, New York City. The only statement bearing on the identity of Citrophan which is made is the claim that it is "a new organic iodin compound." The claims made for Citrophan are many and various, back of all of them is the fundamental thesis: "Science has found that the chief cause of obesity lies in the development of alcohol in the digestive tract brought about by the action of yeast bacteria—taken into the stomach in improperly baked bread—and on raw fruits and vegetables." This claim is unsupported by scientific work. The A. M. A. Chemical Laboratory reports that Citrophan is sold in the form of tablets ranging in weight from about 4½ grains to more than 7 grains. Analysis indicated that the chief medicinal ingredient was tetraiodophenolphthalein. Sugar of milk, starch, vegetable tissue and traces of an acid insoluble substance (probably talc) were found; also two per cent of an unidentified organic substance. Quantitative determinations showed the composition of citrophan to be: tetraiodophenolphthalein 40 per cent., sugar of milk 52 per cent., ash (including talc) 3 per cent., starch and undetermined 5 per cent. About twenty-five years ago, tetraiodophenolphthalein, the chief medicinal ingredient of citrophan, was exploited under the name "Nosophen," as an external and internal antiseptic. It has never attracted much attention in this country. Fangarine is sold (in the form of tablets) along with citrophan. These the A. M. A. Chemical Laboratory found to contain phenolphthalein as its medicinal ingredient. It is evident that citrophan is not a new discovery as claimed, and there is no evidence that citrophan will reduce weight, except perhaps by disturbing the digestive functions. (Jour. A. M. A., March 1, 1924, p. 734).

Sodium Morrhuate in Tuberculosis.—Sodium morrhuate is the sodium compound (soap) of the fatty acids obtained from cod-liver oil. Its use in tuberculosis has been advocated, but like other preparations proposed for the treatment of this disease, it has not been shown to have value. The reported trials make its lack of value probable. Sodium morrhuate has not been admitted to New and Nonofficial Remedies. (Jour. A. M. A., 1924, p. 813).

The Rectal Administration of Arsphenamin.—The intravenous administration of arsphenamin requires some skill, especially in children and in the obese in whom the veins are not readily accessible. Attempts have been made, therefore, to develop other methods of securing the effects of the drug. Among these, rectal administration has found most advocates. Manufacturers, ever seeking novelties, have used favorable reports to market suppositories of arsphenamin. In 1920, the Council on Pharmacy and Chemistry published a report on supsalves stating that the evidence for the rectal administration of arsphenamin was distinctly unfavorable. At present the medical profession is being circularized by the Swan-Myer Company, in an endeavor to popularize the rectal administration of arsphenamin in the form of suppositories sold as arsphenoids. It is opportune, therefore, that Littman and Hutton, at the request of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry, present a critical review of the literature and the result of clinical trials of the rectal use of arsphenamin. Since most advocates of the rectal administration of arsphenamin stress its importance in the case of infants, the investigators carried out their study with children with active symptoms of congenital syphilis. They used arsphenamin given by enteroclysis and also the supsalves suppositories. The authors conclude that the clinical results were too feeble as compared with the intravenous or intramuscular method to warrant favorable consideration of the rectal administration. The investigators hold, moreover, that neoarsphenamin and sulpharsphenamin are now generally used by the intramuscular route in the treatment of syphilis in infants with results that are above reproach. (Jour. A. M. A., March 15, 1924, p. 888).

Horse Hair and Horse Hair Allergens.—To prepare horse hair and horse dander allergens, 10 gm. of the finely divided hair or dander are extracted with 0.2 per cent sodium hydroxid solution. Hydrochloric acid is added to the filtered solution until the isoelectric point of the dissolved protein is reached. The precipitate is collected on a filter, washed with acetone and dried. To the dried precipitate are added 88 c.c. of hundredth-normal sodium hydroxid and the mixture is shaken thoroughly at frequent intervals for twenty-four hours. To this, 12 c.c. absolute alcohol is added. The mixture is shaken at intervals for twenty-four hours. It is then centrifugalized and the supernatant fluid drawn off. This liquid represents 10 parts epidermal protein in 100 parts of solvent. This 1:10 solution is used to prepare weaker solutions by dilution with physiological solution of sodium chlorid. As a preservative, 0.5 per cent. cresol is added. (Jour. A. M. A., March 22, 1924, p. 991).

Canine Rabies Virus.—Results of the single injection method against rabies in dogs have been reported from different sources. The U. S. Bureau of Animal Industry has been conducting experimental work on this subject and results indicate that the prophylactic vaccination has value which, however, is determined to a certain extent by the virus to which the animal is exposed. The use of the single injection vaccine in animals that have been bitten is believed to be unwarranted at this time. The

Hogyes' treatment of six doses, in animals bitten, has been used successfully for some time and the failures reported have been small. The use of Hogyes' vaccine, together with the cauterization of the wound and the placing of the animal in quarantine for six months to a year, seems to be the best method of treating such cases. (Jour. A. M. A., March 29, 1924, p. 1066).

Allonal-Roche.—Allonal (The Hoffmann La Roche Chemical Works, New York) is "Allylisopropylbarbituric acid—Phenyl-dimethyl dimethylamino pyrazolon." In the literature first sent out, it was stated to be a "compound" made by "chemically uniting allyl-isopropylbarbituric acid (37.5%) with phenyl di-methyl-dimethyl-amino-pyrazolon (52.5%) amidopyrin, i. e., in molecular proportions 1:2." Examination of Allonal tablets made in the A. M. A. Chemical Laboratory last year showed that, in water, the substance behaved as a mixture of allyl-isopropyl barbituric acid and amidopyrin and not as a compound. Furthermore, the percentages of the ingredients given were not in accord with the statement that they were in molecular proportions. The published reports on its use are favorable, but they apparently include no observations with controls. The evidence thus far available does not seem to prove (1) that "Allonal" possesses advantage over a mixture of allyl-isophopyl barbituric acid and amidopyrin, or even over one or other of its ingredients alone; (2) that the administration of allyl-isopropyl barbituric acid and amidopyrin in fixed proportion is desirable. The product has not been accepted for New and Nonofficial Remedies. (Jour. A. M. A., March 29, p. 1066).

Book Announcements

Operative Surgery. Covering the Operative Technic Involved in the Operations of General and Special Surgery. By WARREN STONE BICKHAM, M. D., F. A. C. S., New York City, Former Surgeon in charge of General Surgery, Manhattan State Hospital, New York; Former Visiting Surgeon to Charity and to Touro Hospitals, New Orleans In 6 octavo volumes totaling approximately 5,400 pages with 6,378 illustrations, mostly original, and separate Desk Index Volume. Vol. III. contains 1,001 pages with 1,249 illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $10 per volume. Sold by subscription only Index Volume free.

This, the fourth edition of this work, in six volumes, is not an instance of evolution, nor of a long stride forward, but of a leap to the front. Each of the preceding editions was in one volume. The author saw the need for something bigger and responded. The scope of the work is greatly enlarged. Three hundred and fifty pages are devoted to the following: Preparations for Operations including Preparation of the Patient, Surgical Anesthesia and Analgesia, Conduction of Operations, General Operative Technics and After-Care of the Operative Patient. These subjects are well handled by the author and their importance in a work on operative surgery needs no comment. The chapter on Surgical Anesthesia and Analgesia would make a valuable book alone.

We felicitate the author on his portrayal of the qualifications that make a good surgeon. The chief operations on approximately all the organs and tissues of the body are described.

Each operation is discussed under several side headings, providing detail. There is a chapter on artificial limbs which is an asset to the work. The illustrations (over 6,300 diagrams, drawings and photographs) are well executed.

J. W. HENSON, M. D.

Social Control of the Feebleminded. A Study of Social Programs and Attitudes in Relation to the Problems of Mental Deficiency. By STANLEY P. DAVIES, Ph. D., Executive Secretary, Committee on Mental Hygiene, N. Y. State Charities Aid Association. Published by the National Committee for Mental Hygiene, Inc., 370 Seventh Avenue, New York City, 1923. 8vo. Paper. 222 pages. Price **$1.25.**

The Circulatory Disturbances of the Extremities, Including Gangrene, Vasomotor and Trophic Disorders By LEO BUERGER, M. A., M. D., New York City. Philadelphia and London. W. B. Saunders Company. 1924. 8vo of 628 pages with 192 illustrations, five in colors. Cloth, $8.50 net.

Pediatrics. By Various Authors. Edited by ISAAC A. ABT, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago, etc. Philadelphia and London. W. B. Saunders Company. 1924. Volume III., 8vo, 1,051 pages with 223 illustrations. Set complete in eight octavo volumes, totalling 8.000 pages with 1,500 illustrations, and separate Index Volume free. $10.00 per volume. Sold by subscription.

What Every Mother Should Know About Her Infants and Young Children. By CHARLES GILMORE KERLEY, M. D., Consulting Pediatrist, Fifth Avenue Hospital and the Babies' Hospital, New York City. Second Edition Revised. Paul B. Hoeber, Inc., New York. 1924. Paper. 12mo. 103 pages. Price 50 cents net.

National Health Heries. Edited by the NATIONAL HEALTH COUNCIL. Funk and Wagnalls Company. New York and London. 1924. 16mo, full flexible fabrikoid. Average number of words per volume 18,000. Price per volume 30 cents. Complete set of 20 volumes $6.00.

In April issue we announced publication of the first five books of this series. Five more have been put out by the publishers. These are entitled: *The Quest for Health*, which deals with Where It Is and Who Can Help Secure It; *The Human Machine*, on How Your Body Functions; *Food for Health's Sake*, telling What to Eat; *The Young Child's Health;* and *Taking Care of Your Heart.* These are all in the same readable style as the first five booklets.

XUM

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51. MAY, 1924 No. 2

Editorial

Comments on Endocarditis.

What are the causes of simple endocarditis? Rheumatism? Fifty-three and three-tenths per cent of 1,750 cases of rheumatism, according to Norris-Landis, develop acute endocarditis. Tonsillitis, recognized and unrecognized, is a common cause of acute endocarditis. Any of the acute infectious diseases may cause acute endocarditis. Acute endocarditis is invariably a secondary involvement. Although, in a few instances, one may be unable to discover a primary focus, it is generally agreed that it exists.

The left ventricle is usually affected; the mitral valves are the most commonly affected, the auricular side of the mitral valves show the inflammatory changes. Following the shedding of the endothelial and subendothelial cells, fibrin is deposited, making small bead-like excresences. The growth may be large enough to prevent closure of the valves or obstruct the blood stream. Bacteria are found in the fibrinous growths in more malignant types of endocarditis. Few cases of endocarditis of any considerable clinical degree, fail to be accompanied by a more or less myocardial change. This may be general or limited. Disturbance of rhythm, rate and cardiac size bespeak myocardial involvement.

The microscopic appearance of various forms

*Fig. 1—Acute infective mitral and mural endocarditis. The mitral valve is covered with large vegetations. Several of the chordae tendineae have been destroyed by ulceration, only short unattached stumps remaining. Vegetations are also seen on the mural endocardium. (Specimen from the Pennsylvania Hospital).

*Reproduction of illustration in "Diseases of the Chest and the Principles of Physical Diagnosis," 2nd edition, by Norris and Landis, p. 701.

†Fig. 2—Acute infective endocarditis. Showing extensive ulceration of the aortic valves. About the center of the aortic orifice a match-stick projecting from a thrombotic mass indicates the course of the perforation in the aortic leaflet. (Specimen from the Philadelphia Hospital).

†Reproduction of illustration in "Diseases of the Chest and the Principles of Physical Diagnosis," 2nd edition, by Norris and Landis, p. 702.

of endocarditis may well claim attention. The endothelial cells swell and, losing vitality, exfoliate. The denuded area is covered with agglutinated blood platelets and the adjacent endothelium proliferates, producing a verruca. This is the typical lesion of rheumatic endocarditis. In acute bacterial endocarditis, there is purulent infiltration with necrosis and ulceration. There results a large blood platelet mass.

In subacute streptococcocus and bacillus influenza endocarditis, while small, the verruca are larger than in the rheumatic form. The process spreads by continuity. In the muscularis are found polymorphonuclear leukocytes; in rheumatic cases, Aschoff bodies may be found. Pericarditis is found in acute bacterial endocarditis, while in rheumatc endocarditis we have pericarditis without purulent exudate. In subacute endocarditis we do not expect pericarditis.

Embolic phenomena dramatically characterize, at times, the course of endocarditis of bacterial origin. Petechiae, Janeway lesions, Osler nodes, gross embolism, and purpura, are a few of the names given to various lesions. Showers or crops of skin lesions may appear; or gross embolic lesions may appear in lone or isolated instances.

For a descriptive summing up of the varieties, and for a general statement of the causes, the pathology, the course, of the several types, we may give an assembly of the synonyms used by authors of text-books and in current literature. We find under the head of acute endocarditis: (1) simple vegetative and benign endocarditis; (2) thrombo-endocarditis superficialis; (3) endocarditis verrucosa; (4) endocarditis simplex, endocarditis of rheumatism, tonsillitis, chorea, scarlet fever, measles, gonorrhea, pneumonia, and other infectious diseases. It is probable there are cases which lie between each division. Mixed etiology and mixed pathology give irregular symptomatology. There may be intermediate types.

Then, under the head of acute infectious endocarditis, we find such synonyms as (1) septic, ulcerative or malignant endocarditis, (2) thrombo-endocarditis septica, (3) endocarditis ulcerosa, or pernicious endocarditis. This type of endocarditis is described by these synonyms: in these terms are written its pathology and prognosis. The etiology is found in the implantation, proliferation of bacteria and pathologic processes resulting therefrom in the heart lining. Streptococci, pneumococci, staphylococci and gonococci, with streptococci predominating, are the chief causative micro-organisms.

Then, under the term subacute infectious endocarditis, we find the following tell-tale synonyms: (1) subacute bacterial endocarditis; (2) subacute streptococcus endocarditis; (3) chronic malignant endocarditis; (4) chronic ulcerative endocarditis; (5) endocarditis lenta. In ninety-five per cent of cases of subacute infective endocarditis, the etiologic factor is an-hemolytic streptococcus (streptococcus viridans); the remaining cases are due to bacillus influenza and the gonococcus.

When we read the synonyms, as given here, we read the thought and writing on this subject of the profession as a whole. Each title attempts to bring forward a leading characteristic type or form.

Pathology of endocarditis centers in the left ventricle. The mitral leaflets as before stated, are affected most frequently. It is thought that this is true because there is greater tension in the closure of these valve-leaflets and because these leaflets have a wider excursion in the blood current. In acute infective endocarditis, the mitral and aortic valves, alone and together, are most frequently the site of infection and morbid processes.

The symptom-characterization in endocarditis may be discussed at considerable length but, to epitomize for the purposes of review, one may give the following as the chief clinical events:

In the simple form, subjective symptoms do not point emphatically to the cardiac lesion, although there may be fever, leucocytosis, cardiac oppression and tachycardia. On examination, systolic murmurs at the apex and along the base may be heard; even at the aortic area systolic murmurs may be heard. As pathology advances in the endocardium, cardiac signs become more marked and signs of embolism may dramatically appear, throwing into the picture, brain symptoms, kidney symptoms, heart symptoms, spleen symptoms and skin symptoms. The size of the heart increases, the rate of the heart increases, the rhythm of the heart becomes irregular, murmurs characterize valve-action, the sounds become altered, and friction signs may appear.

In the severe or malignant forms, the symptoms are more stormy at the onset and more malign in progress and severity. High fever,

XUM

chills, sweats, joint pains, anemia, tendon-muscle and skin embolic phenomena occur. Hemorrhagic spots in the conjunctiva, retinal and mucous membrane, erythema and petechia appear.

The heart, delirious in action, shows systolic and diastolic murmurs occurring in the left side; and, later, irregularity and intermittency characterize its action. Insufficiency resulting from myocarditis and dilatation may appear. The shades of variety which endocarditis may take, owing to type or mixture of type of symptoms and complications, have caused clinical observers to divide the symptomatology into (a) septic type with its rigor, sweats, irregular fever, and bacteria, (b) typhoid type with its more continuous low fever, prostration, mental stupor, sweats and petechiae, (c) cardiac type with its old heart lesion and acute symptoms imposed on it, (d) cerebral type with its brain symptoms playing the leading part in clinical course, (e) chronic or recurrent type with its milder but returning fevers, chills, sweats, weakness and heart signs.

REFERENCES.

1. Norris-Landis, "Diseases of the Chest and Principles of Physical Diagnosis," 2nd Ed., p. 697.
2. Libman, J. A. M. A., March 24, 1923, p. 815, and other papers.
3. Osler, Oxford Press, Barker and others.

News Notes

The Clinical Congress of American College of Surgeons, Virginia-West Virginia Section,

Held its annual meeting in Richmond, May 2nd and 3rd, Dr. J. Shelton Horsley, of Richmond, presiding. A number of interesting clinics were held at St. Elizabeth's, Grace, Johnston-Willis, Stuart Circle, St. Luke's, Retreat for Sick, and Memorial hospitals. Business and scientific sessions were held in the afternoons, and a public meeting was held on Friday evening. The speakers on this occasion were Dr. M. T. MacEachern, and Dr. Allan Craig, both of Chicago, and associate directors of the American College of Surgeons, Dr. Douglas Freeman, Richmond; Rev. C. B. Moulinier, S. J., Milwaukee, President of the Catholic Hospital Association, and Dr. John Osborn Polak, of the Long Island College Hospital, Brooklyn; Drs. Robert C. Bryan, W. L. Peple, Chas. R. Robins, and Paul W. Howle, formed the committee on local arrangements.

In the Verginia Section, Dr. Clarence Porter Jones, Newport News, was elected chairman; Dr. J. E. Rawls, Suffolk, secretary, and Dr. Hugh H. Trout, Roanoke, counselor.

In the West Virginia Section, Dr. G. C. Schoolfield was elected chairman; Dr. J. E. Cannaday, secretary, and Dr. H. G. Nicholson, counselor. All of these officers are of Charleston.

Staunton Meeting, Medical Society of Virginia.

The Augusta County members are actively at work for the success of our meeting in Staunton, October 14-17. The new hotel—the Stonewall Jackson—is to be headquarters. It is stated that there will be ample accommodations for those who attend, but it is wise to make reservations in advance—the sooner, the better.

As this is the first meeting in the northwest section of the State since the one at Hot Springs in 1897, and the first in Staunton in over fifty years, let's all pull together for a big crowd!

Many county societies will be holding meetings, now that roads and weather make transportation more pleasant, and we suggest that each society appoint its delegate at its next meeting. Each society is entitled to at least one delegate, whether you have two or thirty-five members; the larger societies are entitled to one delegate for every thirty-five members or major fraction thereof. As soon as appointments are made, please send names of your delegates to the office of the Medical Society of Virginia, 104½ West Grace Street, Richmond, Va.

Scarlet Fever Receives Death Sentence.

By means of a test devised by Drs. George F. and Gladys H. Dick, of Chicago, it is believed that a hopeful solution has been made with regard to the scarlet fever problem. The methods used are analogous to those of the Schick test and the use of toxin-antitoxin in diphtheria. It is stated that inoculation is made through the arm and, if the patient is susceptible to scarlet fever, reaction is shown by the following day. In this case, the toxin is used in increased quantities. The new test was described in a recent issue of the *Journal of the A. M. A.* Drs. Dick state that "The therapeutic value of the antitoxin can be deter-

mined only when the results of its use in a large series of carefully controlled cases are available."

This research work has been made possible by a large donation from Harold McCormick, of Chicago, who lost a child as a result of scarlet fever. The work is done in the John McCormick Institute for Infectious Diseases, in Chicago.

Married.

Dr. Hume Lee Horton, Apex, N. C., and Miss Lucille Audrey Barnes, Richmond, April 17. Dr. Horton was a member of last year's graduating class at Medical College of Virginia.

Dr. William Lawrence Gatewood, formerly of Toano, Va., but now of New York City, and Miss Virginia Conway DeJarnette, Richmond, April 12.

Dr. E. W. Perkins,

Petersburg, Va., is spending some time in New York City, where he is taking special post-graduate work.

The National Board of Medical Examiners

Is to hold examinations on June 19, 20 and 21, for Part I., and an June 20 and 21 for Part II. All applications for these examinations must be made on or before May 15, 1924.

Further information may be obtained from the secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

Medical Society of the State of North Carolina.

The meeting held in Raleigh, the middle of April, was the most largely attended in the history of the Society, more than six hundred being registered. Dr. J. V. McGougan, Fayetteville, presided. Senator Royal S. Copeland, of New York, delivered an excellent address at the public meeting. Pinehurst was selected as the next place of meeting and Dr. Albert Anderson, superintendent of the State Hospital at Raleigh, was elected president, and Dr. L. B. McBrayer, Sanatorium, was re-elected secretary.

Dr. E. C. Harper,

Recently of Fries, Va., has accepted the position of clinician to the Bureau of Tuberculosis Education with the State Board of Health, and will make his headquarters in Richmond. He succeeds Dr. Herbert R. Edwards, who resigned to accept a position with the National Tuberculosis Association in New York City.

Dr. F. Musgrave Howell,

Recently of Lynchburg, R. F. D. 4, now has his offices at 618 Court Street, that city.

Dr. L. O. Powell,

Seaford, Va., was a recent visitor in Richmond, having come here on business and pleasure combined.

Dr. Emily Gardner,

Who located in Richmond upon completing her internship at a Pittsburgh, Pa., hospital, last year, has accepted the position as assistant director of the Child Welfare Bureau of the State Board of Health of Virginia and will assist in holding clinics in the various counties of this State.

The American Society of Clinical Pathologists

Is to hold its annal meeting in Rochester, Minn., June 5, 6, and 7, under the presidency of Dr. Wm. C. MacCarty of that city. Dr. Ward T. Burdick, of Denver, Col. is secretary.

A "Doctors' Quarter of a Century Club"

Was recently organized in Chattanooga, Tenn., with Dr. Edw. B. Wise as president, and Dr. Frank T. Smith as secretary. This is a local organization, the principal qualification apparently being twenty-five years' of service in the profession.

Doctors Hold Civic Offices in Winchester.

In the recent Democratic primary held in Winchester, Va., Dr. Julian F. Ward was nominated for mayor of that city, and Dr. C. R. Anderson was nominated to the city council.

Dr. Joseph Grice,

Former city bacteriologist of Portsmouth, Va., has been elected by the city school board as medical inspector in the school system, succeeding Dr. E. A. Hatton who died recently. Dr. Grice will serve on a full-time basis, devoting all of his time to the work of the schools.

Dr. Richard W. Fowlkes,

After a service of eighteen months in the Dermatological Section of Vanderbilt Clinic at the College of Physicians and Surgeons, New York City, has opened offices in Professional Building, Richmond, and will limit his work to dermatology and syphililogy. Dr. Fowlkes graduated from the Medical Department of the University of Virginia in 1920, at which time he received appointment as interne at Bellevue Hospital, New York.

The Virginia State Dental Association,

At its annual meeting held last month in Norfolk, elected Dr. A. Hume Sprinkle, of

XUM

Staunton, president for the ensuing year, and Dr. W. N. Hodgkin, Warrenton, secretary. Dr. Harry Bear, Richmond, who has been secretary for the past seven years, was made president-elect, which will make him automatically president at the next meeeting. The 1925 meeting will be in Staunton.

Doctor!

Have you "Hygeia"—the layman's health journal—on your office table? You have no better way of educating your patients to "stick to you." It gives them good, wholesome reading, and should educate the public to an intelligent discrimination between the true and false in medicine. It is published monthly by the American Medical Association and is in magazine style, attractively illustrated.

Dr. E. M. Tanner,

Recently of Bramwell, W. Va., is now connected with the staff of the Bluefield Sanitarium, Bluefield, W. Va.

Dr. W. J. Wigington,

Java, Va., upon completion of post-graduate work at the New York Post-Graduate Medical School and Hospital, will locate in Rocky Mount, Va. He expects to be home about June the 1st.

Dr. I. K. Briggs

Returned to his home in South Boston, Va., early in April, after undergoing treatment in Danville, Va., General Hospital for injury to one of his eyes.

Dr. A. C. Byers,

Harrisonburg, Va., was elected president of the Hereford Breeders' Association of Virginia, at its annual meeting recently held in Roanoke.

Dr. E. A. Terrell,

After spending some time in Florida, has returned to his home at Fredericks Hall, Va.

Dr. J. N. Barney,

Fredericksburg, Va., major in the medical section of the Officers' Reserve Corps, has been selected by the War Department as one of the seven reserve officers in the United States to report for duty at Mitchell Field, Long Island, to take a special course of instruction as advanced flight surgeon, in the U. S. Air Service. In the army correspondence course examination of officers, Dr. Barney received the highest grade in the Eightieth Division area. He served in the air service during the World War and spent much time in Texas.

Dr. Barney is to report for service about the middle of May to Mitchell Field and will spend about six weeks taking the flight surgeon's course. This will include instruction at several of the larger New York hispitals.

Dr. and Mrs. Paul Redd,

Of Richmond, have returned from a motor trip to Churchland where they spent the Easter holidays with Dr. James T. Redd who has been ill for several months. While away, they visited Norfolk and Newport News.

Dr. John A. Hornsby Elected Superintendent of the University of Virginia Hospital.

At the April meeting of the Board of Visitors of the University of Virginia, Dr. John A. Hornsby, of Chicago, was elected superintendent of the University of Virginia Hospital. Dr. Hornsby has had wide experience as superintendent or consultant in the organization of hospitals in many sections of the United States, especially in Kansas City, Cleveland, and Chicago. During the World War, he supervised the camp hospitals in this country. For several years he was superintendent of the Michael Reese Hospital in Chicago, and under his administration this hospital grew from one of 60 beds to one of over 500. Dr. Hornsby assumed the duties of the office April 17.

Dr. Hudson Honored.

Employees of the Richmond Bureau of Health tendered a farewell reception to Dr. C. C. Hudson, prior to his departure for his new field of service, at which time Dr. E. C. Levy complimented Dr. Hudson upon his excellent work as city health officer, for the past four years, and presented him with a beautiful silver bowl as a gift from the employees and a pair of silver candlesticks as a gift from himself.

Dr. Hudson entered upon his duties as health officer of Greensboro and Guilford County, North Carolina, on the first of May.

Dr. H. H. Hunter,

Whaleyville, Va., is one of the doctors who will go as delegate to the State Democratic Convention in Norfolk, this month.

Dr. T. Garnett Smith,

Of Elk Garden, Va., has returned home after taking post-graduate work in New York City.

Dr. Roshier W. Miller

Has been re-elected vice-chairman of the City School Board of Richmond, Va.

Surgeon-General Cumming Further Honored.

The U. S. Senate has acted favorably on a

resolution allowing Dr. Hugh S. Cumming, native Virginian, now surgeon-general of the U. S. Public Health Service, to accept decorations from France and Poland for scientific service. It is understood that the ceremonies of bestowal will take place before he starts on his return trip to the United States.

Rotary Officers.

Dr. Emmett H. Terrell has been elected a member of the board of directors of the Rotary Club of Richmond.

Drs. Fred Hodges, Wm. H. Parker and Greer Baughman have been appointed members of committees with the Rotary, for this year.

Student Officers, Medical College of Virginia.

At the annual meeting of the student body of the Medical College of Virginia, Richmond, in April, J. M. Dougherty, of Nickelsville, Va., was elected president of the student body, P. T. Goad, Hillsville, vice-president, and James H. McNeer, Bluefield, W. Va., secretary-treasurer, for the coming session..

Members of Signa XI Society at University of Virginia.

The Society of Sigma XI was recently installed at the University of Virginia for the promotion of scientific research. Among the seven professors and six graduate students elected to membership this year are the following from the medical school: Dr. Harry T. Marshall, Walter Reed, professor of pathology, and Dr. James A. Waddell, professor of pharmacology and toxicology, from the faculty; and Staige Davis Blackford and John Staige Davis, Jr., of University, and Henry W. Patton, Jonesboro, Tenn., from the medical school.

Miss Baylor will Locate in Richmond.

Miss Martha V. Baylor, recently superintendent at St. Luke's Hospital, Richmond, has been appointed by Dr. E. C. Levy, Director of Public Welfare of Richmond, as superintendent of nurses in the Health Bureau of the city, a position recently created. She will enter upon her duties August the 1st. Prior to taking up her new work, Miss Baylor will take a course at Columbia University, New York City.

Is it Time to Renew Subscriptions to Your Magazines?

If so, orders—new or renewal—placed through the office of the Medical Society of Virginia, will have prompt attention and bring in a small revenue. May we have yours?

Post-Graduate Instruction.

The New York Polyclinic Medical School and Hospital is offering a six weeks' course for qualified graduates in medicine from May 19 to June 28, 1924. Information about fees and dates of subsequent courses may be had upon application to the superintendent, at 341-351 West Fiftieth Street, New York, N. Y.

Dr. R. C. Carnal,

Formerly of Virginia, announces that he has purchased Ideal Rest Sanatorium and Hospital, at Orwell, N. Y., and would be glad to have any Virginia doctors visit him there. This hospital was started four years ago with seven beds and has grown until it can now accommodate 125 patients.

Dr. Roderick Dew,

Woodford, Va., who was ill for several weeks at a Richmond hospital, is now much improved and at home again.

Banting Research Fund.

In recognition of the benefit which has accrued to mankind as a result of the discovery and use of insulin in diabetes, the Banting Research Fund has been created (1) to provide further funds for the support of the Banting and Best chair of medical research at the University of Toronto, and (2) to establish a fund for the adequate financial support of such scientific workers as may have proposed definite problems of medical research, and for whom funds are not otherwise available. Such assistance may be given to persons working in the University of Toronto or elsewhere.

Financial arrangements in connection with this fund have been vested in a board of trustees, of which Sir Robert A. Falconer, president of the University of Toronto, is chairman. Subscriptions to the fund will be welcome at any time and should be made payable to the Banting Research Foundation, Toronto, Canada.

Dr. E. M. Gayle,

Recently of Portsmouth, Va., is now located at Morganton, N. C.

Dr. R. W. Paul,

Richmond, announces opening of his offices in Medical Arts Building, this city, for the exclusive practice of proctology.

Dr. J. B. Anderson,

For sometime of Marshall, Va., announces that his post-office is now McLean, Va.

XUM

Southern Public Health Laboratory Association.

This Association held its annual meeting in Mobile the last of March. Many problems of interest to public health laboratories were discussed. The session was a very successful one. Mr. Aubrey H. Straus, Director of Laboratories for the State Board of Health, was elected chairman for the ensuing year.

The meeting next year will be held at Memphis.

The American Medical Association

Is to hold its annual meeting in Chicago, June 9-13, under the presidency of Dr. Ray Lyman Wilbur, Stanford University, California. Those contemplating attending should make reservations in hotels of their choice in advance, though ample accommodations are promised for all who attend. Virginia's delegates are Drs. Joseph T. Buxton, J. Allison Hodges, and Southgate Leigh, and it is hoped that many other of our members will find it convenient to attend.

The Medical Association of the Valley of Virginia

Is to hold its semi-annual meeting at Harrisonburg, May 29, under the presidency of Dr. J. M. Emmett, Clifton Forge. Dr. Alex. F. Robertson, Jr., Staunton, is secretary.

The Walter Reed Medical Society

Is meeting at Newport News, Va., May the 14th and 15th. This is the annual meeting of the Society, at whcih all business is transacted. Col. L. A. Thompson, M. C., National Soldiers Home, is president and Dr. L. E. Stubbs, Newport News, secretary.

Dr. and Mrs. G. A. Arhart,

Amelia, Va., left recently for a stay of several weeks in Florida.

Annual Health Education Conference.

At the invitation of the Massachusetts Institute of Technology, a working conference in Health Education is to be held June 23-28, at Cambridge, Massachusetts. The conference called by the Health Education Division of the American Child Health Association will be limited to 100. Registration must be made in advance. Address Emma Dolfinger, 370 Seventh Avenue, New York City.

Dr. Elisha Barksdale,

Lynchburg, Va., left several weeks ago for observation and clinical study work in some of the larger hospitals of the northern cities, including New York, Boston and Cleveland.

Dr. Elbyrne Gill

Has returned to his home in Roanoke, Va., after a visit to New York.

Dr. George E. de Schweinitz

Has resigned as professor of ophthalmology in the University of Pennsylvania Medical School.

The South Carolina Medical Association,

At its annual meeting in Orangeburg, the middle of April, decided to hold its 1925 meeting in Spartanburg, and elected the following officers; President, Dr. D. M. Crosson, Leesville; vice-presidents, Drs. George H. Bunch, Columbia, L. C. Shecut, Orangeburg, and Chas. J. Lemmon, Sumter. Dr. Edgar A. Hines, Seneca, was re-elected secretary-treasurer.

Dr. Walter E. Vest,

Huntington, W. Va., was recently elected president of the West Virginia Tuberculosis Association, for the ensuing year.

Medical Extension Courses.

A series of twelve lectures and clinics on pediatrics will be given for twelve weeks, beginning June 1, in a number of the North Carolina cities. These are arranged by the extension division of the University of North Carolina, at Chapel Hill.

Dr. Herbert R. Edwards

Recently resigned as clinician to the Bureau of Tuberculosis Education with the Virginia State Board of Health, to accept a position as medical field secretary with the National Tuberculosis Association, with headquarters in New York City.

A Free Clinic for Speech Defects

Is to be run for six weeks this spring and summer by the School of Speech Education, 110 Bay State Road, Boston, Mass. The location cannot now be announced, but those wishing to apply to the free speech clinic may do so now by mail, to above address, from any part of the United States. The application will be kept on file and the case will be called in a certain definite order, according to the way the cilinics are arranged. Send your name and address and state the kind of case, which may be done by postal card.

The American Journal of Physical Therapy

Is perhaps the latest periodical to enter the medical field. It is to be published monthly

by The Professional Press, Inc., 17 N. Wabash Avenue, Chicago, at $2 per annum in the United States. Dr. Charles R. Wiley, of Chicago, editor, has a number of associate editors working with him. The journal is to be devoted to the various branches of physical therapy, with contributions and clinical material from authorities in its line. The advertising pages are to conform to the reguirements of the Council on Pharmacy and Chemistry of the American Medical Association.

Dr. Thomas P. West

Has been elected a charter member of the Rotary Club just organized in Bedford, Va.

The University of Virginia Hospital,

Charlottesville, in its annual report for year ending June 30, 1923, shows an excellent amount of work done at that institution. The present capacity of the hospital is only 200 beds, but at times the patients have exceeded that number. During the year there were 4,684 admissions to the hospital and 7,487 visits were paid in the out-patient department.

The American Surgical Association,

At its meeting held in Baltimore, in April, Dr. George W. Crile, Cleveland, presiding, elected Dr. Albert J. Ochsner, Chicago, president, and re-elected Dr. Robert B. Greenough, Boston, secretary.

The American Association for the Study and Cure of Cancer

Will hold its annual meeting in Chicago, June 11, under the presidency of Dr. L. Duncan Bulkley, of New York. Members of the State organizations interested in wiping out the scourge of cancer are invited to join.

Reappointed Commissioner of Health.

Dr. Ennion G. Williams has been reappointed by Governor Trinkle as Commissioner of Health of Virginia for another period of four years, beginning July 1, 1924.

For Sale.

Spencer microscope, operating chair-table, instrument case, instruments and up-to-date medical books. For information, write Mrs. John Parish, Smithfield, Va.—(Adv.)

Physician Wants

Practice in small town on railroad. Will consider partnership or whatever goes with practice. Address Box 132, Sprigg, West Virginia. (Adv.)

For Sale.

Doctor retiring from private work wishes to dispose of new equipment consisting of operating table, scales, sterilizer, cabinet, floor lamp, etc. Will sell as lot or by piece.

Would also be glad to sub-let office in central location in Richmond. Apply to No. 335, care this journal. (Adv.)

Obituary

Dr. Edward Julian Moseley,

A charter member of the Medical Society of Virginia, died at his home in Richmond, April 22. He was born in Chesterfield County, Virginia, eighty-six years ago and, after attending Hampden-Sidney College and the University of Virginia, studied medicine at the University of the City of New York, from which he graduated in 1860. He served as surgeon with the Chesterfield County troops throughout the war between the states and later located in Richmond for the practice of his profession. He was a beloved and honored member of the profession and engaged in active practice in this city for over fifty years, retiring about seven years ago. Dr. Moseley was a prominent Mason. He is survived by three children, one of them being Dr. E. J. Moseley, Jr., of this city.

Dr. William S. Gordon,

Another prominent physician of Richmond, died at his home in this city, April 24, after an illness of two years. Dr. Gordon was born in Raleigh, N. C., in 1858, but had spent practically his entire life in this city. He studied medicine at the Medical College of Virginia, from which he graduated in 1879, later taking special courses at Jefferson Medical College and the University of Pennsylvania. He had been a member of the Medical Society of Virginia since 1886, was an ex-president of the Richmond Academy of Medicine, and was for a number of years physician to the City Jail. He was one of the founders of the University College of Medicine and, upon consolidation of that school with the Medical College of Virginia, became one of the professors in the combined schools. At the time of his death, Dr. Gordon was emeritus professor of medicine in the Medical College of Virginia. He was affiliated with a number of medical organizations. Dr. Gordon is survived by his wife, mother, two daughters, and a large family connection.

XUM

Dr. Hugh Benjamin Mahood,

For many years a prominent physician of Emporia, Va., died suddenly April 24, while attending a patient in that place. He was a native of Petersburg, Va., and fifty-three years of age. Dr. Mahood graduated from the Medical College of Virginia in 1899 and became a member of the Medical Society of Virginia in 1904. He was a World War veteran and an active member of Southside Virginia Medical Association. He is survived by his wife.

Resolutions Adopted by Greenesville County Medical Association.

Dr. Hugh Ben Mahood having died April 25, 1924. and he being a member of the Greenesville County Medical Association, we desire to place on record some appreciation of his life as man and physician.

BE IT RESOLVED, That in the death of Dr. Mahood this organization has sustained a loss of one of its most valuable members. As a member of this body he, by his unfailing courtesy, helpful spirit and strength of intellect, won the respect and affection of his associates. To his profession he devoted his all, there being no work too hard, no personal sacrifice too great for him to make to alleviate human suffering. Unselfish by nature, in love with humanity, he gave his work and sympathy freely and whole-heartedly to the aid of his fellow man. He lived a full life and died in service. We commend his life as an example to members of his profession, and deplore his loss to his co-workers and to the community.

RESOLVED FURTHER, That these resolutions be spread on the minutes of this society; a copy be furnished to the Medical Society of Virginia, and that a copy be furnished to his widow.

R. T. MCNAIR,
M. H. TREDWAY,
G. M. NAFF,
Committee.

Dr. Edward Alexander Hatton,

For a number of years a practicing physician of Portsmouth, Va., and medical inspector of schools in that city, died April 3, after an illness of several weeks. He suffered a stroke of paralysis recently and had been unable to resume work since. Dr. Hatton was born in Portsmouth in 1869, and graduated in medicine from Columbia University, New York City, in 1891. He became a member of the Medical Society of Virginia in 1900 and was identified with several local medical organizations. Dr. Hatton had practiced in Portsmouth since 1892 and, just before his illness, retired from active practice that he might accept the position as medical inspector of schools of Portsmouth on a full-time basis. He was rejected for service in the World War on account of his health, but served as chairman of the medical examining board which passed on drafted men in Portsmouth. His wife and a son survive him.

Dr. John Peebles Proctor.

Friends of Dr. Proctor in this section will regret to learn of his untimely death on April 13, as the result of an automobile accident while hurrying to an emergency operation. Dr. Proctor was a native of this state, having been born at Drakes Branch, Va., about forty-eight years ago. He graduated from the University College of Medicine, Richmond, in 1903, after which he served as an interne at St. Luke's Hospital, this city. He joined the Medical Society of Virginia in 1903 and had retained his membership in our State Society, even though he had been living and practicing in Athens, Ga., for about twenty years. Dr. Proctor was one of the owners of St. Mary's Hospital, at Athens, Ga., and was considered one of the prominent surgeons of that state. He is survived by his wife, who was Miss Hileman, a graduate nurse of St. Luke's Hospital, Richmond, and three small children.

Dr. Edward Bancroft,

Formerly of Southwest Virginia, died in the Chesapeake and Ohio Railway Hospital, Huntington, W. Va., April 9, death being due to pneumonia. He was 37 years of age and graduated from the University College of Medicine, Dichmond, in 1912, after which he served as internship at Sheltering Arms Hospital, this city. He was at one time a member of the Medical Society of Virginia. He moved to Huntington from Roanoke, Va., and was shortly thereafter made one of the resident physicians at the C. & O. Hospital at that place.

Dr. Peter Arthur Haley,

Of Charleston, W. Va., died of pneumonia, on February 28. He was born in Louisa County, Virginia, 48 years ago, and had graduated in medicine from the University College of Medicine, Richmond, in 1899. He was a prominent eye, ear, nose and throat specialist of Charleston. His wife and two sons survive him.

Dr. James J. Phillips,

A well know pediatrician of Raleigh, N. C., died suddenly, at his home in that city, April 2, death being due to angina pectoris. He graduated from the College of Physicians and Surgeons, New York, in the early nineties and, after practicing in New York for about ten years, located in Tarboro, N. C. He had lived in Raleigh only a few years.